VOL. L. NO. 199.] [JULY, 1941.

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY

I.—OTHER MINDS (IV.).

BY JOHN WISDOM.

Gray. Now where were we? It began by Black saying, "Apart from the fact that from a man's present behaviour we can never know whether his future behaviour will confirm our diagnosis of his mental condition there is unfortunately the further fact that we can never know from a man's behaviour, however complete and consistent it may be, what his inward state is nor whether any inward state exists, that is whether in a body we observe from its cradle to its coffin there is any mind or soul at all".

White. And I said, "You-might-as-well-say, 'Apart from the fact that from the present behaviour of a watch we can never know its future behaviour there is unfortunately the further fact that we can never from any story about its behaviour, however complete as well as consistent, know whether that behaviour was due to an invisible leprechaun or not'. You-might-as-well-say, 'Apart from the fact that from the present symptoms of a patient we can never know his future symptoms —the prognosis is for ever problematic—there is unfortunately the further fact that however complete the history of the case from the cradle through the clinic to the grave we can never really know whether his symptoms were due to germs or not, when those germs if they exist are invisible—the diagnosis is for ever problematic.'"

Black. And I said, "But-this-is-different. If two doctors agree as to what symptoms a man does, will and would exhibit,

as to, for example, what would happen if he were given this drug and what if that, then even if the one says 'There are germs in his blood though we can't see them', and the other says 'There are not, though his symptoms are like they would be if there were', still there is no real difference of opinion between these doctors. For there is no difference in what they expect. In contrast to this there is a great difference between (*a*) what a man expects if you tell him that he will be colour blind to-morrow but will avoid all mistakes because he will see printed on everything the name of its colour though he will never be able to tell people this, and (*b*) what a man expects if you tell him that he will be all right to-morrow and see things in colours as well as appear to do so. The one has for him a very different meaning from what the other has." And I insisted (1) that when your hearer is the person about whom you are speaking then a statement about how he will feel has for him a very different meaning from what the corresponding statement about how he and his environment will look has. Thus it makes no difference to us whether Smith has his stitches out under an anæsthetic or not, nor whether he's shot at dawn and joins the choirs invisible or shot at dawn and joins the devils in hell. But it does to him. And then I insisted that though it in some sense makes no difference to us whether Smith has an anæsthetic or is very self-controlled, if it makes a difference to him whether he is told that he will have an anæsthetic or told that he won't, it must also make a difference to all who speak the same language. For to all who speak the same language the predictions must have the same meaning as they have to Smith. And this isn't a mere inevitable conclusion from a proof we can't pick a hole in—it is a fact that in some sense we *do* mean something different by "Smith will lie still but feel everything" from what we mean by "Smith will lie still and feel nothing". And we *expect* something different.

White. In some sense we do, in some ways we do, somehow we do. But how? That is the crux of this affair. And somehow we know our own pain in a way we don't know the pain of others. But how? Is it in a way that gives sense to talk of knowing in the same way the pain of others? That is the epistemological aspect of the crux of this affair.

Black. What do you mean "*How* do we mean something more?" We make a further claim. We make a claim about the state of Smith's mind while his body lies still. And one who says that Smith's soul is still there, that Smith is conscious, that Smith is in pain differs *seriously* from one who

says that when Smith is under chloroform he isn't conscious at all. The difference is serious although the issue cannot be decided. For the disputants can only wait and see what happens and that won't decide the issue. For either Smith will lie still and then when he comes round say that he felt everything and describe the operation, and that won't decide the issue because, though it's odd, it may be that after chloroform people wake with memories just like those they would have had [1] had they been conscious. Or Smith will lie still and say he felt nothing. But maybe he's forgotten. Or Smith will lie still and say he felt nothing while he writes that he felt bad. And that won't decide the issue.

Gray. And I said " It's true we cannot decide about whether people feel when they are under chloroform, but that doesn't mean that we *never* know what is going on in the minds of others. It is true, if you like, that we cannot even *prove* that a man is in pain but sometimes what we observe is such very good evidence for his being in pain that it would be absurd to say that we don't know that he is in pain just as it would be absurd to say that a doctor doesn't know that the valves of a patient's heart are leaking even when there are conclusive signs that it is."

White. And I said, " On what occasions have we in the past first found the signs of pain in others and then found the pain ? "

Gray. And I said, " Never. But that doesn't stop me saying that we sometimes know by analogy that a man is in pain. You might as well say we don't know by analogy of the existence of measle germs because there's never been a time at which we have seen them. But of course we do know of their existence, and by an argument by analogy with other cases in which, though we haven't found measle germs, we have found other germs associated with symptoms rather like those of a measle patient."

White. And I said, " Yes, but *what* an argument by analogy. For amongst the premisses leading to the conclusion ' There are invisible measle germs ' is the premiss that no germs are to be seen, and the consequence is that people very naturally are apt suddenly to have qualms about whether this argument justifies its conclusion in just the very way they have qualms about whether the argument for souls justifies its conclusion."

[1] The chloroform question came from trying to find a question analogous to " Can a man still exist when his body has disintegrated ? When his body lies still ? " But it will be seen that at this point it meets Wittgenstein's question, " Do we dream or wake with memories of what never was ? "

They are apt to say " Mightn't we just as well say that this shows that the analogy breaks down, that these symptoms sometimes occur without germs ? " just as they are apt to say " Mightn't one just as well say that observation of other bodies shows that the association between groans and pain which holds so well of one's own body breaks down for others ? " And they are very right to feel the same qualms, for the arguments are very like, as you yourself insist. And the only way to restore confidence to the step from symptoms to germs is not to say that the sceptic has overlooked certain evidence, for he hasn't, nor to say that he has not made the best of the evidence he has, for the cleverest calculators, the slickest logicians can do no better with it, but to say that there is no step. The only way to restore confidence in the passage of thought from symptoms to germs is to say this : Were we to know that *all* the effects of invisible germs were to be found in a patient then we could not conceive of finding that after all there were no germs in him. Therefore the inference from the effects to the germs vanishes towards immediate inference as the effects known to be present come to include more and more nearly *all* the effects of invisible germs. The inference vanishes into immediate inference, the argument into redescription. The sceptic about the invisible germs mistakes their logical type, *i.e.* mistakes the grammar of ' invisible germ ', *i.e.* the logic of statements about invisible germs, *i.e.* the justification-syntax of sentences involving the expression ' invisible germs '. Likewise the sceptic about the soul invisible, intangible, illuding the five senses, mistakes the grammar of ' souls '. He becomes sceptical about the step from the signs of souls to souls. You are right to say that he's wrong to be sceptical about the step. But it's not for the reason your words suggest that he is wrong. He is not wrong because though he can't *prove* the existence of souls he can be sure they exist in the way that even before one has tried one's microscope one may be sure that there are malaria germs in a man because on other occasions one has seen these germs associated with the symptoms the man is now exhibiting. The sceptic about souls is wrong like the sceptic about invisible germs because he remains sceptical when an inference which is constantly approaching an immediate inference has become one, when an argument which is constantly approaching a redescription has become one, when although we make all the motions of taking a step there is no step we take.

Gray. And I said, " But-this-is-different. We do know what observing pain is apart from observing its effects." It is of course

absurd to talk of finding, apart from its effects, a germ *defined* as invisible, intangible, etc., and so when all the effects to be expected are present it is absurd to ask, "But are there invisible germs here?" But it by no means follows that it is absurd to talk of finding, apart from their effects, germs in fact invisible, that is germs which are always in fact detected by their effects. Now bread and the mental states of others are not *defined* as detectable only by their effects, although they are in fact always detected through their effects. Consequently you, White, have not shown that the step from the effects of bread to bread and from the symptoms of pain to pain are not really steps but are immediate inferences or redescriptions. For bread and the mental states of others are like germs hitherto in fact invisible, not like germs defined as invisible.

Brown. Before you press this point about the difference between, on the one hand, the arguments from the signs of germs in fact invisible to the germs and, on the other hand, arguments from the signs of germs defined as invisible to the germs and declare that if the former is like the latter it is no argument but only a redescription, so that the question, "Here are all the signs of measle germs but are there measle germs?" is not a question I should like to dispute an assumption involved in this. It seems to me that you and Black admit more than you need when you allow White to step from the statement that since one cannot conceive of *finding* an invisible germ apart from observing its effects it therefore *is* its effects so that the argument to invisible germs is not an argument. Undoubtedly one cannot conceive of finding all the effects of invisible germs and then *finding* that there are none; but this does not prove that one cannot conceive of finding all the effects of invisible germs and there *being* none. You all assume that when we can't find out whether S is P then it is senseless to ask whether S is P.

Black. So it is. If you know what it is for S to be P then you know what it is to know that S is P, for it is to know that what must be so for S to be P is so. And if you understand the question, "Is S P?" you know what it is for S to be P. Indeed, 'S is P' in an interrogative tone, 'Is S P?' and 'Do you know whether S is P?' all mean the same thing as near as makes no difference.

Gray. Exactly. Of course when Brown puts the assumption in the words, "When we can't find out whether S is P then it's senseless to ask whether S is P", then that seems wrong because these words may well express a falsehood. For there

XUM

certainly are cases where we say "We can't find out whether S is P", where, nevertheless, we would not say that the question "Is S P?" is senseless. To begin with the simple case where 'can't' refers to physical difficulty, *i.e.* expense. We say "I do wish I knew whether he buried the papers or burnt them. But I can't find out now because he's gone to Borneo." This is a case where a man says he can't find out whether S is P and yet would insist that the question whether S is P is a meaningful one. There is however a very great difference between this case in which someone laments his ignorance of something he can't find out and other cases, for example, the case of someone who says "I do wish I knew whether he buried or burnt the papers. But I can't find out now because he's gone to Heaven." This is very different. One *could* go to Borneo but not to Heaven. Because of this the latter lament is less of a lament. In other words, Black and I, and presumably White also, want to maintain that the harder it is given H to find out that S is not P the more improbable does it become, given H, that S is not P. By 'the harder' I don't mean 'the greater the expense'. What I mean is that the less *possible* it becomes given H to find that S is not P the less possible does it become given H that S is not P, and that when it's impossible given H to find that S is not P then it's impossible given H that S is not P. For if there is a possibility which if realised would make S not P then we have only to find it realised to find that S is not P. In other words the less 'find that S is not P' stands for, *i.e.* the less situations it describes such that to find one of them would be to find that S is not P, the less does 'S is not P' stand for, so that when given H 'find that S is not P' describes no situation then given H 'S is not P' describes no situation. And surely there is nothing surprising about this? Surely when I ask "Did he burn or bury them?" this amounts to "I wish I knew whether he burned or buried them". But then if this last is senseless so is the question to which it is equivalent.

White. Well, but there are cases where we would say or feel inclined to say it's a question whether S is P when we haven't an idea of what could be done to answer it. For example, some people would say that it is senseless to talk of now really finding out what happened in the past or whether there has been any past, but that doesn't mean that we can't understand the suggestion that though all the evidence now suggests and will suggest that Charles I was executed someone in fact took his place and he escaped to live quietly in Savernake Forest for the rest of his days. He used to keep bees. Even when

there is no process left which we would call finding out whether a man burned or buried certain papers we can understand the suggestion that he burned them and the suggestion that he buried them. We can imagine both alternatives, can consider both hypotheses.

Black. But we are up to this now. We realise that there is imagining and imagining, that there are alternatives and alternatives, understanding and understanding, meaningfulness and meaningfulness. So we realise that the point is " Can the question ' Is S P ? ' be anything but a ' joke ' question when there is nothing which if it did happen we would call finding the answer ? "

Gray. What's all this about meanings and meanings ? What I allow to White, and I believe you agree with me, is this : If it is *logically* impossible to find out whether S is P then the question ' Is S P ? ' has no sense.

White. Gray, your faith in ratiocination is pathetic. I can just hear you deducing away " Is it *logically* or merely *physically* impossible to find out whether God exists ? It's logically impossible, therefore it's a senseless question." But don't you see that the new formula only reputs the question—puts it in the form " Is it logically impossible to find out whether God exists ? " A demonstrative argument only reputs a question, as appears when we reverse the antilogism on which it is based. Thus we may argue, " The question whether God exists isn't senseless, therefore talk about finding out whether he exists can't be ". Or we may argue, " The question whether God exists isn't senseless, the talk about finding out whether he exists is senseless, therefore talk about whether God exists can be sense while talk about finding out whether he exists is not ? " Remember the question, " Is this my duty ? " the answer, " Yes, to do it is to fulfil your filial blood-bond ", and the renewed question, " But is it always one's duty to fulfil the filial blood-bond ? " Remember, " Is the step from signs of germs to germs justifiable ? " and the answer, " Yes, by analogy ", and the renewed question, " But is this sort of extension of analogy justifiable ? " There are no right words in philosophy only lucky ones. There are reformulations such as " What it is *logically* impossible to verify is meaningless ". But no reformulations are at last correct for then they vanish into logic. It is only that some are more seductive than others. And there is no sharp line between logic and philosophy. Logic is rhetoric, proof persuasion, and philosophy logic played with especially elastic equations.

XUM

Gray. Ah, all that's a little beyond me. Perhaps you would for the moment confine yourself to the point at issue. I would say that if and when it has no sense to talk of now finding out whether there are germs in a man's blood, bread in the larder or pain in Smith's mind then the questions, "Are there germs in his blood?" "Is there bread in the larder?" "Is Smith in pain?" are also senseless. I wish to maintain in general that when there's no sense in talking of now finding out whether S is P then there is no sense in still asking whether S is P. Brown differs from me apparently. May I ask whether you agree with him or with me and Black?

White. Let us return to what you said. You said "What Black and I hold is that if it is *logically* impossible to find out whether S is P then it is senseless to ask whether S is P".

Brown. And I want to say that to say that decides what has all along been at issue. For what has been at issue has been this, "Given that all that can be done to find out whether Smith is in pain has been done and that it is all in favour of his being in pain can't we still wonder whether he is really in pain, isn't it still meaningful to ask whether he is really in pain?" This has been the point at issue, and if you now say that if all that can be done to decide a question has been done, then it is no longer meaningful to ask the question, then you decide, in general terms, the issue which we have been considering in a specific form.

Gray. The issue has been, "Given that all that can *actually* be done to find out whether Smith is in pain has been done and that it is all in favour of his being in pain can't we still wonder whether he is really in pain, isn't it still meaningful to ask whether he is really in pain?" Now this issue is not begged by saying what Black and I wish to say, namely, that given that all that can *conceivably*, can *logically* be done, to find out whether S is P has been done and points to S being P, then the question "Is S P?" would be meaningless. But it is not meaningless to ask whether a man might not now and for ever give all signs of being in pain now and yet not be. Hence it must make sense to talk of finding out that what all the indirect evidence about a man's state of mind suggests is after all quite wrong. And of course this does make sense. The idea we have in mind is that of knowing what is going on in the mind of another in the direct way one knows what is going on in one's own mind.

White. So it seemed. And yet this knowing of other minds is not merely rare but mysterious. It isn't quite clear to me what it would amount to. To see into Diana's mind, would

that be to feel one had reached a place where it was always before breakfast in early Spring, the brightness and the cold, the fields still pale from winter, delicate, exquisite, unoppressive grace? And how would the subtle and benevolent but relentless mockery which appears in George's face and talk appear in his mind? Would his images all be stamped with the features of a creature that smiles but with its face in shadows cast by things now long ago?

But this is all nonsense. The fact is one of three embarrassing things has to be said if anything is said. (This will bring out again how the best thing in philosophy is not to say anything, or if you must say something, say it wildly—you're bound to go wrong if you're careful.) To return, if anything is said one of three embarrassing things must be said because three points are involved.

Usually with the questions we ask one another we feel no hesitation about their being substantial questions. I mean when I ask my bedmaker whether she has lit the fire I feel no embarrassment but sometimes I cover up the philosophical questions I leave on my desk because I am afraid of her thinking me silly. And again when we ask everyday questions we feel no hesitation in saying that there are ways of finding out their answers. Philosophy begins when a question is raised and it seems a sensible question, and there's a lot we can do towards answering it, only it doesn't seem quite enough to be called finding out the answer, and yet there's nothing we would call putting the finishing touch to finding out the answer. It seems queer to say that it is still a sensible question whether a certain thing is so, when it makes no sense to say that it is still not known whether it is so because it makes no sense to talk of really finding out whether it is so or not. In face of this situation we feel we have either (1) to say that though it makes no sense to talk of finding out the answer to the question the question is a real question, or (2) to say that really it does make sense to talk about finding out the answer to the question although it requires some care to explain what the finding out would be, or (3) to say that the question isn't a real question though it seemed so real and sensible at first.

Now I can feel some inclination to say that while "Could we ever know of the existence of invisible, intangible germs otherwise than by their effects" is senseless, nevertheless the question "*Are* there invisible germs here?" makes sense even when all their effects have been observed. Surely even under these circumstances one could still wonder what the germs were like.

But, as I've said, What sort of wondering is this? Remembering how such a question as "Is it a dog or a wolf?" changes in character according to whether it is asked in a dim light or a good light and changes *gradually* in character the better the light and the more the means to answering it have been tried, I am inclined to say that when we have an interrogative form of words surviving when all the means to answering it have been tried then those words don't put a real question. As we have seen, if observations favouring one answer to a question, for example, "Is it a dog or a wolf?", balance those favouring the other then it is usual, conventional and proper to say that a question remains. But the question which remains is very different from what it was in a dim light when lots of tests had not yet been done, and different in a way very relevant to the attitude or feeling of a person who uses the form of words, "Is it a dog or a wolf?" For curiosity has become inappropriate. And it has therefore become unpoetic to call his question a question just as it may become intolerable to say "That is Joan" when she has become an inmate of a mental hospital and her whole time occupied with absurd obsessions—intolerable, however correct.

And when all conceivable tests for whether there are leprechauns or germs in things have been done and all turned out *pro* then to ask whether there are leprechauns or germs there is to ask something which it is unpoetic to call a question. We have been into all this already.[1]

Gray. May we now return to my point. What I said was "It is of course absurd to talk of finding, apart from their effects, germs defined as invisible, intangible, etc., and so when all the effects to be expected are present it is absurd to ask 'Are there invisible germs here?' where the germs are *defined* as invisible, intangible, etc." But it by no means follows that it is absurd to talk of finding, apart from their effects, germs in fact invisible,[2] that is, germs which are always *in fact* detected by their effects. Now bread and the mental states of others are not defined as detectable only by their effects, although like measle germs they are in fact always detected that way. Consequently, White has not shown that the step from the effects of bread to bread

[1] MIND, Oct., 1940, especially pp. 395-402.

[2] We have been into this a little already, MIND, Oct., 1940, p. 388, l. 25. Someone may ask, "Is it absurd for a human being to ask 'But are these humanly invisible germs present?'" Compare Ayer on the knowledge of other minds in *The Foundations of Empirical Knowledge.*

and from the effects of pain to pain are not really steps but are immediate inferences or redescriptions. For bread and the mental states of others are like germs hitherto in fact invisible, not like germs defined as invisible.

White. There is of course a difference between talk about invisible germs and talk about measle germs however much in fact invisible the measle germs have been. For if you say "I've discovered a way of seeing the measle germ", I say, "No! how, what?" and you say, "Well, at sunset you sacrifice a goat, at dawn light a fire of laurel leaves, and at noon draw off a little of the patient's blood. Then if he has measles you will see first, blood as it usually appears to the naked eye, then blood as it appears under a moderate microscope, then blood as it appears under an enormously powerful microscope, and, finally, you will see amongst the things you saw as small even under the enormously powerful microscope small organisms moving swiftly like bees about the blossom." And I say, "You don't say so." In contrast to this, if you say, "I've found a way to see invisible germs" then I say, "You mean you've found they are not quite invisible".

This point has sometimes been brought out by saying this sort of thing: "Though we cannot in fact see measle germs, the mountains on the other side of the moon, the stars beyond the fixed stars, the elephants in heaven, this is only a physical accident, so however much we've failed to find them it's still meaningful to ask whether they don't exist, it still means more to say that there are stars we can't see than it does to say that there'll be an eclipse of the sun on 18th July just as if there were those extra stars." People say, "Even though we've tried all ways to see fairies and still have never seen them so that we haven't any idea left as to what now to try, this doesn't make it meaningless to say, 'But may be we will see them to-morrow', and thus leaves meaningful the question, 'Do fairies exist, unseen by mortal eyes?' This isn't meaningless like talk of things defined as invisible or talk of disembodied spirits (here remember Thomas Aquinas on the need for the resurrection of the body). Talk of fairies isn't meaningless talk like talk of disembodied spirits because we can describe what a fairy is like and thus what it would be to find one—

> 'Wee folk, good folk,
> Trooping all together;
> Green jacket, red cap,
> And white owl's feather.'"

" And," people would say, " it's the same with the measle germ.

> ' It's eyebrows of a vivid green
> Have never, never yet been seen
> But scientists who ought to know
> Assure us that it must be so.' " [1]

There is none of this I wish to deny, there is none of it I can deny. No one differs from anyone about what a sentence means and how far two sentences mean the same provided they both know the language and both describe the meanings of the sentences aseptically. No one differs from anyone about what sort of animal they've found provided they know the animal and describe it in aseptic words. " Is it a lion ? " may be a question, in view of its having stripes like a tiger, but " Has it stripes ? " " Has it a mane ? "—about this no dispute arises. Philosophy arises only because people ask questions to which they know the answers. It's one of those competitions which decide themselves, not one in which the Editor's decision is final. Only of course no words are absolutely aseptic—a question may arise, " Do these constitute stripes ? "—only then no one can deny that the stripes are very faint and blurred and, on the other hand, no one can deny that the creature's colour is far from a uniform bronze. But to return. As I have said, I can see that " Are there invisible germs ? " is different from " Are there measle germs ? " in that there isn't anything one could call finding (apart from their effects) invisible germs, while though perhaps there is nothing one could call finding that there are no measle germs, and though one who says " There are measle germs " doesn't at all mean that if you look with a microscope you'll find some, because he knows you won't, nevertheless there is something which, if quite unexpectedly it did come about, would lead people to say that at last they had seen the measle germ. And this inclines me to say that compared with " Are there absolutely invisible germs here ? " the question, " Are there rather invisible germs here ? " is a meaningful question. But I am not inclined to make much difference between them. After all I can imagine an absolutely invisible thing—he wears a smile no one ever sees. I can imagine God seeing the invisible germs.[2] Of course this as we have seen with the invisible leprechaun is an imagining which leaves my

[1] Belloc, quoted by Broad in *Scientific Thought*.

[2] Here compare Ayer, who this way comes back to saying that all the questions he said were meaningless are meaningful. " Not all " some patient defender protests. But it might as well be all.

question, " Are there invisible germs ", very different from this question before all signs of them have been observed and very different from the question, " Are there germs ? " before we've looked. But then so it is with the imagining of ourselves finding measle germs when this imagining is the sort which remains when the microscope and all other hopes have been tried. True, the picture of fairies or germs remains undimmed however long we look for them without success. But if now, whatever ritual is suggested, we not only don't expect it to succeed but expect it to fail, then how like are we, though we say, " I believe in fairies " or " There *are* fairies somewhere ", to one who says, " There are fairies but they are all by nature invisible " or one who says " There are no fairies ". Suppose A says to B " This doesn't fall because it's held by a magnet ". B says " I see no magnet ". A says " It's further on ". B goes further on and says " Still no magnet ". A says " Further still ". B says " Still no magnet ". After a while, though there's no saying just when, A's statement functions very like " There is a magnet but at the point of infinity ", which is very like " There is no magnet though this behaves as if there were ", which is very like " There is an invisible magnet ".[1] " There is a happy land " but " far, far away ". Of course the line between having tried lots of hopes without success and having tried everything without success isn't a sharp one and so the line between a question where there is still a finding the answer and one where there is not is not a sharp one. And you may say that in such cases as " There is a magnet beyond ", " There is a germ within ", " There are fairies somewhere " we *never* reach a point where *every* test about which there is *any* hope has been done, so that the question never becomes a joke.[2] We need not quarrel over whether we say " They become utterly jokes at infinity ", or say " They never become utterly jokes though they come nearer and nearer to that ".

And if you like to say that the questions, " Are there fairies ? " " Are there germs ? " are meaningful, real questions because they never become untestable with *any* hope, then by all means do so. Or if you like to say that they are real questions or at least meaningful questions because even when they have become

[1] Compare, (1) " I believe in miracles but they are very few and one can never be sure there isn't some explanation ", with (2) " Miracles don't happen though often one cannot find the explanation of an occurrence ", and (3) " Put your trust in God and keep your powder dry ".

[2] Thus in spite of the extensive efforts of the Society for Psychical Research the question " Do we survive death ? " has not yet become a joke.

hopeless they retain an undimmed picture such that if by some means, however astonishing, we were to find facts to fit it we would answer the questions in the affirmative, then again by all means do so. But I don't call a question a question unless an affirmative answer expresses a real belief and I don't call a belief a real belief unless it's a bet,[1] and I don't call a bet a bet unless its a real belief and the backer differs from the layer in what he expects. When in other days a man backed his own horse against another or the clock that was a real bet, but to back a horse because one must back something isn't to back him. A man may back a horse like this and say, with a great show of confidence, " You see, he'll win ". But he's talking to make the party go—his confidence is a pretence. He's quite different from the elderly gentleman forsaking his usual reticence to shout, " Mahmoud in a cake walk ", as the field for the Two Thousand came by the Bushes with Mahmoud fast regaining the length he lost at the gate.

Perhaps those who say " There are fairies, there are germs, though you may bet your life you'll never see them ", would be more pleased to see them if they did see them than those who say that there are none. Or may be they would be less surprised to see a fairy or a germ, however unexpectedly, than those who say there are none. Perhaps it is these things which find expression in " You can't be sure there are no fairies ".

We have now gone over what the words about fairies and germs do to people who hear them and what they register in those who utter them and how these things are different in different circumstances. After all this detail and refinement sketchy as it may have been to ask to be allowed to present the thing in one big black line, " meaningful—not meaningful " seems just crude. The question, " Are they meaningful ? " has become a bore. We have seen the race and can do without the shouting. Write it in red or write it in black, tell it with smiles or tell it with tears that won't alter what's up the slide.

And now as to your point that bread isn't defined as invisible or as unknowable except through its effects, so that to ask " Is there bread here ? " is like asking whether there are germs here where the germs are not defined as invisible.

First, as we have just seen, there isn't all that difference between asking, " Are there absolutely invisible leprechauns, currents, germs here ? " and asking, " Are there rather invisible leprechauns, currents, germs here ? " However, as we recalled,

[1] Compare Mr. Moulder in *Orley Farm*, ch. lxvii.

we can imagine a crash of thunder and then seeing a fairy or a germ. Is the bread case like this? There is no step or ritual in which I have any confidence for revealing noumenal bread. But more, I cannot say what would need to follow a crash of thunder, in order to lead me to say "There now I've seen the noumenal bread". Would it do to see spread out as on a diagram the several sides and internal structure of things. This would be a gift indeed—no more mistakes at Madame Tussauds, no more Easter eggs without a filling. But still it hardly fills the bill. After all it's only another visual sensation. True, it's extraordinarily capable of preventing mistakes about subsequent sensations but that only means that it presents simultaneously and conveniently what we otherwise learn from subsequent sensations. It can't count as finding that what our sensations suggest is so is so.[1] There is nothing which would count.

And now the confidence of the agnostic about material things begins to be suspect. He's so sure. He says we can't find out that they exist. He's sure we never shall find out, he doesn't see how we could, he says. And that's very true, he doesn't see how we could, and that not merely in the way he can't see how we could ever fly with our arms. We don't ever fly with our arms and we never shall, but we do in dreams, that is there is something we would call this if it would happen. That is, the agnostic about flying with arms must watch the newspapers in case there's a headline—Man Flies with His Arms. But the agnostic about the existence of a bread which is other than, because it causes, our sensations, he need not watch the papers. For no astonishing pattern of phenomena, no newspaper scoop, however astounding, can wreck his claim or cure his pessimism. As a doubt about whether there is bread in the larder becomes less and less practical it becomes more and more philosophical and more and more impregnable. And when it becomes quite philosophical it becomes quite impregnable and gains a more than physical necessity. At the same moment it becomes a senseless lament. The sceptic, like the rest of us, wants to be on a selection that can't lose.[2] He forgets that in heaven one's

[1] There is an excellent account of this matter in Mr. G. A. Paul's fellowship dissertation, *Perception*, in the Library of Trinity College, Cambridge.

[2] The sceptic refuses to back anything, saying that everything may lose except Logic which doesn't run. In saying this he appears to back something but he doesn't. For his own statement can't lose and doesn't run. This is in accordance with itself. It doesn't disprove itself. It describes its own nature.

never down on the day only because there is no betting there or if you like there is but only first favourites win.

Gray. Well, drop the bread. The supersensual bread is, when one comes to think of it, like the invisible, the intangible germs and fairies. When one comes to think of it it makes no sense to talk of finding it apart from its effects, when amongst its effects are included all its effects on our sensations. And so when all these are present it makes no sense to ask whether it is present. But this after all is not what we are concerned with. What concerns us is the question, "Is there anything which if it did occur we would call knowing, really knowing that Smith sees the Union Jack in red, white and blue"—is there anything we would call knowing this apart from its effects on Smith's behaviour?

White. The answer to that is "Certainly there is". Suppose that sometimes Jones gets a mental image in a blue frame with the word 'Smith' underneath, and when he does knows that that mental image is what Smith is seeing.

Gray. But how does Jones know that the image is an image of what Smith is seeing?

White. It isn't my business to say how he knows. The point is that it's perfectly possible to understand the statement that Smith knows whenever he sees an image of X with underneath it the device 'Smith', that X is what Smith is seeing, and that this would be knowing what is going on in Smith's mind apart from its effects on his behaviour. We might, that is, know what is in Smith's mind from our own inner sensations instead of from our observation of Smith's body, that is from our outer sensations. And then we should be knowing what is going on in Smith's mind and body in the way we know what is going on in our own mind and body.

Gray. No, no. We know what is going on in our own mind by introspection and we know what is going on in our own body by inner feelings, and we can imagine, as you say, that we should come to know by inner feelings what is going on or going to go on in the bodies of others, *e.g.* that so and so is going to have a cold. But this wouldn't be really knowing what is going on in the minds of others—and that for two reasons. First, such knowledge would be indirect. For if you come to think of how Jones knows that his image is an image of what Smith is seeing then you see that his knowledge is a case of inference from effect to cause. For it is by experience that Jones knows that such and such an image signifies that Smith is seeing such and such a thing. His image would tell him nothing if he hadn't,

whenever he got an image of X with 'Smith' written under it, then found that Smith was seeing an X. But a knowledge which relies on past experience and is indirect like this may always be wrong, isn't really knowing.

White. Well, but still he knows, in a special way, what is going on in Smith's mind. It is not without arguing from effects to cause but it is without arguing from effects on Smith's body to the state of Smith's mind. The question you asked was "Can one man tell what is going on in the mind of another apart from its effects on the behaviour of the other?" And the answer to that is "Yes, in telepathy people do".

Gray. Excuse me, No. I allow that you have shown that one can imagine, even if one can't find cases where what I will call "the instantial basis" for what one person knows of the mind of another is not an outer sensation of the bodily behaviour of the other but an inner sensation of his own. And I own I had in fact overlooked this when I put our question in the form "Is there anything we would call knowing that Smith sees the Union Jack in red, white and blue apart from our knowledge of its effects on his behaviour?" But you will remember I said that there is a second objection to saying that the case you imagined answers that question in the affirmative. This second objection brings out how Jones' knowledge of Smith's mental condition is still based in part though not so completely as usual upon knowledge of Smith's behaviour. As I've said Jones' knowledge doesn't consist in having an image with the name 'Smith' underneath it or in a special blue frame. It does not consist in having an image which is in fact an image of what Smith sees. "Jones knows", we might say, "from the image what is going on in Smith's mind." But this is our usual carelessness. What strictly Smith knows from the image of X with 'Smith' written underneath is that Smith will say he sees X and that there will be nothing wrong with Smith's eyes, etc., and he knows this not merely from the image but because in the past he has found the image in his own mind always associated with certain behaviour on the part of Smith.

White. He might just know without any such experience of past associations.

Gray. Wouldn't his knowledge then be nothing but a blind intuition, a blind faith as blind superstition? Of course if he had had such images for people other than Smith then he might reasonably trust the Smith images without further experience. But then once more his knowledge would be based on the association of his inner sensation or image with behaviour. He knows

what he knows of Smith from what he knows of how Smith or others have behaved. And the further point remains that what he knows of Smith is after all only how he will behave, and not his mental state.

White. Well, if this knowing from pain that Smith's in pain, knowing from seeing an image of crossed swords that Smith is seeing crossed swords would not be knowing directly what is going on in Smith's mind, what would be? Nothing would be. When I ask "Shall I be in pain to-morrow?" or someone says to me, "You'll be in pain to-morrow", or I overhear someone say of me, "He'll be in pain to-morrow", this means more to me than failing in tests for colour-blindness. Then that's because I shall have another way of finding out whether I am colour-blind. I might have, as we have just seen, another way besides observation of behaviour for finding out whether someone else is colour-blind. But this other way consists still in having feelings and sensations of my own and from these expecting other sensations of my own. And to talk of any other kind of knowing of anything lacks a sense, and in particular talk of any other kind of knowing of what is going on in someone else's mind lacks a sense. One who talks of knowing neither by observation of behaviour nor by telepathy of what is going on in the mind of another just doesn't know what he is talking about.

Black. No, I can't agree with that. You assume that no account can be given of any kind of knowing except knowing which consists in having sensation and basing on it prediction of further sensation. In your view no knowledge differs in kind from knowledge of what will win the 2.30. Apart from the fact that I wouldn't call this predictive and therefore problematic business knowledge at all, I must insist that you have given no reason for saying that all talk of knowledge, apart from this betting on future sensation on the basis of present sensation, is without sense. It leads, you should notice, to the conclusion that when on the basis of sensation from Smith's symptoms on Tuesday at 2, together with telepathic sensation at the same time, we have made bets on future sensations from Smith and these bets have all turned out well, then it is absurd to ask, "Do we know that Smith was in pain on Tuesday at 2", except in so far as it is still possible to make still further bets on what Smith will do. Something like this conclusion we have already rejected. For we have insisted that the conclusion that Smith will be colour-blind means more than any story, however long, about what he'll do, that is, that however much information we have about the stimuli applied to him and the reactions

he has made it still makes sense to ask, "Is he colour-blind?" We may add now that "Smith will be colour-blind" means more than any story, however long, about what sensations we shall get from Smith, *whether sensations of his behaviour or telepathic sensations from him.*

White. I quite agree that no telepathic knowledge on our part of what is in Smith's mind will do as direct knowledge of what is in his mind, for such knowledge is always still too little or finally too much. But I am returning to the conclusion that the reason why we never gain knowledge of what is going on in the minds of others is the same as the reason why we never find a perfect pulley on which W doesn't balance $\frac{1}{2}$. W, or reach the Islands of Perfection. It will follow, I know, that somehow there is something wrong in saying that in expecting Bobby to feel sick we do more than expect him to fall silent, turn green, bring up his breakfast, feel a bit sick ourselves if we are there, and so on. But now after all what more do we expect?

Black. Before coming back to that let's get quite clear about telepathy's not being what is wanted by the real metaphysician when he asks for real knowledge of the mind of another. What did you mean when you said "It is always not enough or finally too much"?

White. What I meant was this: Besides the fact that any telepathy consists in predicting sensation from sensation and is thus (*a*) indirect and (*b*) still confined to the knower's sensations, there is the point that only if the telepathic sensations are *extremely* like those they are used to predict is there any inclination to speak of the facts of telepathy as direct seeing into the mind of another. At the same time if they are extremely like a new disinclination to say this arises in another way. I must explain. Suppose first that Jones' telepathic sensation of Smith's colour-blindness consisted in looking into a colour-blindness detector applied to Smith—he screws it on to Smith's head and looks into an aperture—and from the sensation he gets he is able to read off whether Smith is colour-blind or not. The simplest thing is to suppose that in the machine Jones sees the word "Colour-blind" or "Not colour-blind" according to whether Smith is colour-blind or not. Now, no one would be much inclined to call this knowing directly that Smith is colour-blind, especially if anyone else could with the detector do as well as Jones. Indeed, it would hardly be called telepathy, though of course it would be knowing what is going on in Smith's mind, "not by the *usual* channels of sense"—if 'usual channels' means sensations of, or resulting from, Smith's bodily behaviour.

If instead of applying the mental state detector to Smith's head and reading the word 'colour-blind' one held the machine between one's knees and gazing into it saw as in a mirror the world coloured or not coloured and knew in this way whether Smith were colour-blind, people would be more inclined to talk of telepathy—it would be like crystal gazing for the past, the future or the distant; it would be more nearly seeing for ourselves Smith's colour-blindness. But still it wouldn't be to see Smith's colour-blindness. The situation would not differ in kind from the first thing we imagined—reading 'Colour-blind' in a machine applied to Smith's head. If from reading the word 'Pain' in a mental state detector applied to Smith's head we knew Smith to be in pain no one would call this telepathy, still less would they call it knowing directly Smith's pain and still less would they call it feeling Smith's pain. If by putting the mental state detector on one could feel pain, sharp when Smith's was sharp, stabbing when Smith's was stabbing, then I should feel inclined to talk of feeling Smith's pain when one put on the mental state detector. And if when one put on special spectacles one saw things a bit differently, blurred if Smith suffered from astigmatism, and colourless if he were colour-blind, one might then speak of seeing with the help of the spectacles what Smith sees. And if now one could do this without a machine at all so that just at will one could see and feel things as Smith saw and felt them then that would be telepathy, great telepathy. And suppose that Jones just all the time, at once and involuntarily, saw things as Smith saw them then Jones would be spoken of as Smith's mental twin, and if Jones saw a thing grey like Smith and a third man saw it red then one might say that the third man perhaps is wrong until others came along and confirmed him. Then it would be said that Smith and Jones were suffering from a joint illusion. And it might be said that only Smith and Jones really know what is in Smith's mind. Again it might be said if Jones always thought the same thoughts and felt the same feelings as Smith that here was a case of the same person being in two bodies at once.

Suppose, lastly, that after an operation on Smith's eyes or after a clap of thunder Smith cries "The colours fade", and at that moment not merely some small scene in a glass but all the world goes grey, not merely to Jones and not merely to you but to everyone. This would come nearest to our knowing, our all knowing as opposed to merely Jones' knowing, what was going on in Smith's mind. This would be everyone's having the highest class telepathy for Smith.

At the moment we reach this which we feel we might call everyone's knowing what occurred in Smith's mind, in Smith's private world, at that very moment Smith's private world becomes the public world, his psychical processes physical events. A complete insight by everyone into Smith's private world makes Smith's sensation, Smith's illusion, Smith's hallucination, not an hallucination but a real, physical event, however mysterious. Thus at the moment we reach what we seek it vanishes into something we never sought. You can't have direct knowledge of a feeling, a sensation, without having that feeling or sensation. We can't all see a dagger-like patch without its being no longer an hallucination but a dagger. Jones can't have direct knowledge of Smith's feeling of depression without feeling that feeling himself there and then. But if when and as Smith or any other man felt depressed we all felt depressed then there would be no point in Jones or any one else saying " Smith feels depressed ". It would do as well to say " A depression this morning ", " An atmosphere of excitement last night ", " It's raining ". When we are confident of others feeling with us as we look at a house whose long blank windows face empty lawns stretching to the still trees which surround it, we say " It's sinister ", instead of " To me it always feels sinister ". If when Smith sees a dagger in the air we all expect not only dagger-behaviour from Smith but also dagger-sensations for ourselves, then when Smith says " A dagger in the air " we expect not merely Smith's hallucination of a dagger but—a dagger. No wonder we can't all have direct knowledge of Smith's hallucination of a dagger—for as our knowledge of it becomes direct so does its nature change from a mental aberration to a physical reality. No wonder we can't have *direct* knowledge of the *mental* condition of others.

Black. You are trying again to persuade us that the words 'real or direct knowledge of the mental condition of others' has no more sense than 'real, direct knowledge of the existence of invisible germs or supersensual bread'. But the position is different in this case of the souls of others. To talk of direct knowledge of germs is to talk of seeing germs because this is the appropriate way of knowing directly of the existence of germs as opposed to inferring it from a rash on the face. Consequently, to talk of direct knowledge of invisible germs is absurd. But seeing is not the appropriate way of knowing mental states. Direct knowledge of mental states is knowledge by introspection. Now you obtained your result, " No wonder we can never know directly of the mental condition of others ! " by thinking that the meaning of 'direct knowledge' here was to be found by

altering and improving for the purpose our telepathic and thus sensory knowledge of mental states. The result was that when the sensory knowledge had become suitable, good enough, for our saying that we could all know directly Smith's hallucination of a dagger, what we had got turned out to be knowledge of a physical thing. The truth is that what we have in mind when we talk of knowing the mind of another is not having the same sensations as another but having the same sort of knowledge of the states of another as each of us has of his own. We might call it introspective knowledge if introspection weren't by definition knowledge of one's own states. What we have in mind is an extension of an introspective faculty.

Just as when we ask of things so light we cannot feel their weight, "Are their weights really such as these good scales indicate?" we mean "What would we feel if our power of feeling weight were greater and we lifted these?" so when we ask of bodies whose pain we cannot feel, "Is this behaviour really due to pain?" what we mean is "What would we feel if our power of feeling pain were not confined to our own bodies?" This is what we mean when we talk about the pain of others and really knowing it. As with the weight of feathers we can't in fact use this method of knowing what causes the visual phenomena we observe. But just as it would be absurd on this account to say that weight is a visual phenomenon and a matter of a body's behaviour on scales, so is it absurd to say that pain is a visual phenomenon and a matter of a body's behaviour on a psychogalvanometer. If it is asked how we know the weight of feathers which are too light for us to feel their weight we get into many of the difficulties we have got into about pain in others. There is the inclination to say that when we speak of the weight of things whose weight we cannot feel what we mean is something about how refined scales will react to them, that when we say that A weighs the same as B we mean they will balance on scales and that therefore "we can never really know whether feathers have weight" is a senseless lament. But of course the fact is that "A is heavy", "A weighs the same as B" *mean* the same when we are talking of feathers as when we are talking of cakes and we don't then mean merely something about scales. No doubt we have to rely upon indirect means such as scales in order to ascertain the weight of feathers. We cannot in fact learn directly which of two feathers is the heavier. But if it is suggested that since we can't conceive of what it would be to know directly the weight of feathers therefore when we talk of their weight all we mean is something about what

would ordinarily be called the effects of weight, then the answer is that we certainly *don't* mean merely that, and that therefore we must be able to conceive of knowing directly the weight of feathers and that in fact we *can* conceive of feeling their weight because we can conceive of our weight-detecting and weight-discriminating faculty so improved that we can detect the weight of feathers *in the way we detect the weight of cakes.* To say that dogs hear sounds we can't hear doesn't mean merely that dogs respond to whistles which when blown seem to make no noise, it means that the dogs hear what we would hear if our auditory acuity were greater.

White. And if anyone asks "Do we really know that the whistle makes a sound?" Gray will reply, "Yes, we know by analogy with cases where our senses do not fail us so soon", for example, cases in which a whistle is blown, we hear it, and a dog looks back.

And if anyone asks "Do we really know the weight of feathers?" then Gray will reply, "We know by analogy with cakes". This is a real argument by analogy because we know here what it would be like to find that what analogy suggests is so is not so, because we know what it would be to actually feel the weight of feathers as opposed to merely inferring it from the movement of scales.

Black. And when someone asks "Is this feather heavier than that?" what he *means* is "Would this feather feel heavier than that if one were able to feel the weight of feathers?"

And when someone asks "Is Smith colour-blind?" "Does Smith feel more pain than Robinson?" what he means is "What would we find Smith's mental states to be if our capacity for detecting mental states were extended. Talk of consciousness in the bodies of others where we can't feel it gets its meaning and justification from cases where we can, just like talk of sound and weight where we can't feel them get their meaning and justification from cases where we can."

White. Like that is it? Exactly like that?

In that case it will be worth while your explaining to me specially carefully what an improved faculty for detecting weight would be.

Black. You know what superior auditory acuity is?

White. Yes, I think so. But I'd like you to tell me what it comes to. It isn't just that I can hear sounds when others hear nothing. I might do this because there was something wrong with my ears and not because they were specially good.

XUM

Black. Of course. It is when a man hears sounds which are really there of which others hear nothing that we say "He has very good hearing".

White. No doubt. Only what constitutes sounds being really there?

Black. Well, suppose a highwayman says "I hear the sound of coaches" when the other highwaymen can hear nothing, and sure enough he's always right. Or suppose someone says "I can hear the sound of moths chumbling the clothes in that chest", and sure enough they are.

White. And the other highwaymen know the one who said "I hear the sound of coaches" was right because soon they too hear a coach and soon see it. That is, they find other tests soon confirm his statement that he hears the sound of coaches. And we should say that a man's faculty for discriminating weight is improved by taking opium, if after taking it he could tell the difference between weights which before felt just alike to him though now the scales and all other tests confirm his statement that they differed in weight.

Black. Yes, of course.

White. But the consequence is that the question, "These scales tip towards the black feather but does this prove that the black feather is heavier—it feels to me to have no weight at all?" is a foolish question even if you insist that "The black feather is heavier" means not merely that the scales tip towards it but that a person with superior powers of weight discrimination would feel it heavier. For if (1) 'a person with superior power of weight-discrimination' means one who feels differences of weight when *ever* and as the best scales show them, then the question becomes of the form "A prefers this wine to that but which would an expert prefer?" where an expert is one who *always* agrees with A. And if (2) 'a person with superior powers of weight discrimination' means one who *has hitherto* always felt differences in weight when and as the best scales show them then the question becomes of the form "A prefers this wine to that but which would an expert prefer?" where an expert is one who has hitherto agreed with A. The answer here is "Heaven knows—probably he would".

Brown. If the expert differed from the scales then we wouldn't know whether the black feather weighed heavier than the white as the scales indicate or whether there was something about a black feather which slightly upset the actions of even the best scales. Which hypothesis we should favour would depend upon surrounding circumstances. For example, if the move-

ment on the scales were slighter than any hitherto associated with discrimination by the expert then we should say, "It looks as if even Mr. Scales has failed at last". On the other hand, if the movement on the scales were larger than in some other cases where Mr. Scales had nevertheless succeeded in detecting a difference in weight then we should say, "Very extraordinary. Is Mr. Scales not quite well or is there something wrong with the scales?" and if when we added a hundred feathers just like the black one to the black one, and a hundred feathers just like the white one to the white one, the scales did not tip any more, although each feather singly tipped the scales against a single white feather, then we should be very astonished, and one of the things we might say is that it is impossible to weigh single feathers on the scales. But the point is not which we would say and what would make us say the one and what the other, but that since a conflict between the expert Mr. Scales and the scales would lead to doubt as to whether the black feather was heavier than the white, therefore its being heavier is not to be identified either with the expert's report or the scales' report.

White. Exactly. That is Black was wrong to say that when even after finding all physical tests such as scales to be in favour of one feather being heavier than another we nevertheless ask, "Now, is it heavier or is it that all the usual effects of weight are here clustered in the usual way but no weight?" then what we mean is "What would a person with superior power of weight discrimination feel if he felt these feathers?" And yet if this isn't what we mean what is? If such an expert couldn't find out what the real weight is who could? Surely you are not going to say that the fact that one thing is heavier than another is something over and above what happens to scales they are put on, what happens to bridges they are rolled on, how long they take to burn, and especially what they feel like when lifted? Or are you going to say it is some quality which we never directly know which causes in people certain sensations and which causes in scales certain movements.

Black. Well, I don't know. I can't identify the weight of things with the way scales behave when the things are put on them; weight isn't something you see happening—see with your eyes. And I can't identify it with what we would feel because lots of things have weight which we wouldn't feel at all. Nor can I identify it with what an expert would feel, because if an expert felt one thing heavier than another and yet everything else pointed to their being equal in weight then we shouldn't know what to say, whether to say the expert was right or the scales.

XUM

White. Just like you wouldn't know what to say if everyone felt a room very hot and all thermometers and physical phenomena within it pointed to its being rather chilly. And yet surely the heat of a room is a matter of how we feel in it, or a matter of that together with the facts that thermometers rise in it, butter melts in it, milk goes sour in it, water readily boils in it. If it is something over and above all this what is it and what would it be like to find that it is present?

Black. And yet since none of these things are essential to one thing's being heavier than another, and we may be perfectly informed about these things without knowing whether a thing has changed in weight or is equal in weight to another, surely it follows that they must be merely the signs and not the essence, much less the whole essence, of weight. What I mean is this: suppose Mr. Scales, the expert, feels that the black feather is heavier to-day than it was yesterday does it follow that it is? Not at all. May be it's just the same weight as it was in spite of Mr. Scales. Mr. Scales may have a black feather illusion like the size-weight illusion, and indeed if all other tests are against Mr. Scales we shall say that the black feather has not changed in weight though Mr. Scales, the expert, feels it has.

White. And yet, embarrassing thought, surely it would be *possible* that Mr. Scales was right and all the other reporters including the best of scales wrong.

Black. Exactly. And from this it follows that each of the other reports is not essential to weight, since weight may have changed without their changing or have disappeared without their changing. From all this it is clear that the phenomena which you have mentioned and which admittedly provide our only evidence as to the weight of bodies, do not provide a list of necessary and sufficient conditions of its presence, do not constitute weight—they are only signs of its presence, they are not of its essence. And this is confirmed by the fact that we might know all about the phenomena and be entirely uncertain as to what its weight was. This would happen if the phenomena gave conflicting indications.

White. But to say that weight is not a matter of what the scales do or of what we feel but of something we never directly know—isn't that very odd? I beg of you to allow yourself to feel the feelings that must lie somewhere in you, feelings that this sort of talk is, to use a phrase of Professor Moore's, "the purest mythology". And may I draw your attention to a result which is even more strikingly paradoxical than the statement that a thing might feel heavy, tip down the scales, etc., and

still not be heavy. This last statement is not itself a denial of anything we ordinarily assert. It denies no one of our ordinary statements of fact for it is not a statement of fact at all. It doesn't conflict with a recognised law of logic or rule of language like "A man may be the child of another man's parents and yet not be his brother".[1] In itself then, queer as it sounds, it is not paradoxical in the way of conflicting with statements we ordinarily accept. But combine it with the premiss "And we never know of weight except through these phenomena, the feelings we have, the tipping of the scales, etc.", and we obtain the result that we never know the weight of anything. For even Gray will hardly suggest here that we know of weight from scales and feelings by an argument by analogy and induction. There's been no golden age when besides putting things on scales or lifting them with our hands or feet we have directly observed, correlated with these phenomena, the real weights of objects. And owing to the generality of the ignorance claimed it is not possible to reply here that we have on occasion experienced something *like* weight. When the lament is the limited one that we don't know the weight of things which are so light we can't feel their weight then the reply is made that we know their weight by analogy with things whose weight we can feel. But in the general case this sort of answer is much more out of the question. And yet without it we are forced to the paradox, "We never have the faintest ground for saying that one thing is heavier than another". We are forced to this paradox unless we accept more mythology—a new mode of knowing. Ah! these new modes of knowing, these new modes of being, how swiftly, how easily they soothe our conflicting inclinations. How much more easily than the re-examination of the impeccable steps which have led to the impossible conclusion.

But I prefer that re-examination. Let us repeat, "Sometimes we know of two things that one is heavier than the other and we know it by feeling them and weighing them". I want to list at once the blunders that lead to the denial of this. First, from the fact that a phenomenon connected with one thing's being heavier than another is not a necessary condition of its

[1] The axiom of reducibility is not a law in a logic. It is a law connecting logics. The relations between logical constructions and what they are constructed out of are always presented with an empirical air. This is because the relations between them are not within a logic. A logic gives the necessary relations between statements about things in a given category or order of logical construction, not the relations between statements about things in different categories.

being heavier, it is often taken to follow that it is not necessarily connected with its being heavier [1] and that it could not together with some selection of such phenomena suffice for and constitute its being heavier. Having cloven hoofs, having horns, having four stomachs are none of them necessary conditions of a thing's being a cow. But they are necessarily connected with a thing's being a cow, and if a particular animal has some selection of them then its being a cow is not something over and above its having that selection of characters.

Second, it is argued that the scales fall *because* of the weight of what's on them, and even that it's the weight that *gives* us the sensation we get when we lift the weighty object, and that the weight is therefore something in the object which is *responsible* for and *explains* the cluster of symptoms it exhibits, and that therefore as the *cause* and *explanation* it is not identical with its effects.

Thirdly, it is argued that we argue and argue problematically and for ever problematically from the phenomena to the weight and that the conclusion of a *problematic* argument cannot be identical with the data, the *evidence*, by which it is supported.

Fourthly, but in close connexion with this, it is said, "However 'conclusive' the phenomena exhibited, surely I may wonder whether a thing which by all tests appears heavier than another really is, surely I can imagine the opposite?"

Fifthly, it is argued that since I can be certain about the phenomena and then if I find them conflicting remain uncertain as to the weight, therefore to know the weight is not to know the phenomena and therefore the weight is other than the phenomena.

The answers to these arguments are all of the same form. The answers are: "Causes? Yes. Explanations? Yes. Problematic inferences? Yes. Wonder whether the opposite? Yes. Imagine, understand the opposite? Yes. Remain uncertain, remain in ignorance? Yes." But there are causes and causes, explanations and explanations. It's the energy in the coal that makes it burn so well, the electricity in the wire that makes it give off sparks. And there is problematic inference and problematic inference, problematic inference that doesn't vanish towards immediate inference and problematic inference that

[1] Mr. Clive Bell in his excellent and intellectually snobbish book *Civilization*, while explaining in a kindly way to an ignorant and stupid public the logic of his inquiry, makes this blunder as well as the cruder one of supposing that if there are non-S which are P then P is no part of the essence of S. See *Civilization*, p. 24.

does. It's a problematic inference from the symptoms of measles to measles. There is ignorance as to whether an animal in a dim light is a tiger or a lion and ignorance as to whether a striped lion is a lion—however strong the light. There is wondering and wondering. " Ridden by a lady ", says the dealer as we gaze at the extremely good looking and surprisingly inexpensive animal that his man is riding at so very collected a canter. " Ridden by a lady ", we murmur, half-reassured but remembering just in time the elegant but determined female we noticed leaving the yard as we entered it.

The monstrousness of the conclusion that weight is an unknown something which may or may not be behind the phenomena we fondly but unjustifiably take to prove its presence and its properties, leads one to look carefully at the steps which led to it. These steps cannot be said to involve logical slips or even ambiguities except in a stretched sense. The expression 'ridden by a lady' is not ambiguous. And we cannot say that there is a use of 'know' in which one may know that certain things are so and not know whether a certain thing is so although that thing's being so just is a matter of those other things being so. We cannot say this. There is not a well-marked usage of 'know' in which one may know P and not know Q although Q is nothing but P. We can only say that such a use would be welcome, that we could introduce it with advantage. It would be useful in dealing with the puzzle " Is demonstrative inference circular ? " and it would be useful in the case in which a thing's being a cow would seem certainly to be a matter of it's having horns, hoofs, etc., while yet one may know very well all about its having or not having the right horns and hoofs and yet to reply to " Is it a cow ? " with " Well, I hardly know ". To see how readily there could be a use of words in which a puzzle would not arise enables us to see through it. We grasp how it arises not from the ambiguity, not from the vagueness, but from the *elasticity* [1] of language.

[1] Wittgenstein has said of certain words that they have thousands of meanings when they have not. Sometimes his purpose has been to distinguish certain words with what I will call multiple grammars from others, but at times he has been referring to the *elasticity* of words when he would have done better to say, as he may have done, " *Every* word has thousands of meanings ". Some people, almost including myself, have tried to make this truer by talking of vagueness (MIND, October, 1938, p. 489). But this won't do either. Some words are not at all vague. Elasticity is infinite vagueness or infinite ambiguity. If you say that a word has as many meanings as individuals to which it could be applied then ambiguity becomes elasticity.

XUM

"Ridden by a lady", says the dealer truly, and his words are not ambiguous. But our picture of a certain non-typical lady gave us a better grasp of what he was saying, prevented our proceeding as if the word 'lady' had a narrower, sharper usage than it has.

Black. Well, I can see that it was wrong to say that the question, "The black feather tips the scales but is it really the heavier?" means "How would the black feather feel if our weight detecting capacity were improved?" and at the same time I see that this is what the question *amounts to* when all other tests have been applied. What I mean is this: If "S is P" means "S is p_1 and p_2 . . . and p_n" then "Is S P?" asked in a context in which it is already known that S is p_1 and p_2 . . . and p_{n-1} *amounts to* "Is S p_n?" I see too how easily one might come to say "Even if our weight detecting capacity were increased we wouldn't know the weight of feathers because we would still be guessing from our sensations at something that is other than they and a source of those sensations", and how from this one might come to saying "We not only do not know whether things whose weight we can't feel really have any weight but we never shall know and never can know". I grasp how these words could be interpreted as a genuine lament for our ignorance, for the absence of weight experts, and how the words give the lament a false importance by describing our ignorance as ignorance of weight and a false everlasting hopelessness since our abilities *may* improve at any time. I grasp how the words could be given an interpretation which would make the everlastingness of their hopelessness appropriate but would make it like the hopelessness that lines so truly parallel though infinite should ever meet.[1]

White. And doesn't the pattern of talk here remind you of the pattern of talk about knowing whether Smith's pain is greater than Jones'? You said to begin with that the cases are very like. The patterns of talk are indeed almost congruent. They run: *A.* I can't tell whether Smith's pain is greater than Jones', whether the weight of the black feather is greater than that of the white. *B.* Can't tell? But look at the sweat on his brow, look at the scales. *A.* Yes, but these things don't enable me to *know*, only to guess. *C.* Not merely guess but know by an argument by analogy. *A.* A very poor argument because only in comparatively few cases of sweat and scale-tipping do I find associated pain and weight. *B.* To describe the justifica-

[1] With apologies to Marvell.

tions for saying that Smith is in the greater pain, that the black feather is heavier, as arguments by analogy is muddling. The conclusion that Smith is in pain is just a redescription of his symptoms and a reminder of how in one's own case these symptoms are associated with pain. The conclusion that the feather is heavier is merely a redescription of what happens to scales it is put on and a reminder of how in other cases these symptoms are associated with a feeling of weight. *A and C.* But this is to make weight and pain in bodies whose weight and pain we can't feel nothing but visual phenomena, things to be detected by eyes and ears. And yet what we talk about, what we mean, when we talk of weight and pain in these cases is not different from what we mean when we talk about weight and pain in other cases. And in these other cases it is very clear that we are not talking merely, if at all, about what is to be detected by eyes and ears. We are talking about something which in these cases we can feel in a different way. And what we must mean when we ask in those cases where we can't feel weight and pain whether it is there and what is its nature, is what *would* we feel in those cases if we could in those cases detect weight and pain as we do in the other cases. We must be asking what we would find if our faculties for detecting weight and pain were improved.

D. " Is Smith in more pain than Jones ? " " Is the black feather heavier than the white ? " can't mean " What would we feel if we could feel their pain and weight ? " because if we could feel pain on looking at Smith and pain on looking at Jones and more pain on looking at Smith we would still hesitate to say that Smith felt more pain if every other sign suggested that Jones was in more pain than Smith, and if we could feel more weight in lifting the black feather than in lifting the white we would still hesitate to say that the black was heavier if every other sign suggested the opposite.

A and C. It is true that " Is Smith in more pain than Jones ? " " Is this feather heavier than that ? " doesn't mean " What would we feel if we had higher powers for detecting differences in consciousness and weight than we have ". All we meant was that in cases where all other signs favoured one answer there would, contrary to *B*'s suggestion, remain a question open, a question which in the peculiar circumstances would *amount* to " What would we feel if our faculties were improved ? "

B. This wouldn't really be a question. Because our faculties wouldn't be improved unless the answers they gave correlated with the other signs as to the nature and presence of consciousness

and weight. The question would therefore be like, "I like this wine but is it really good?" where this means "Would an expert like it?" and an expert is a man with the same tastes as I.

A and C. But, as *D* said, it is perfectly conceivable that our faculties should be improved and then conflict with other signs. And if they were improved then when in cases in which all other evidence suggested that Smith was in greater pain than Jones, that the black feather was heavier than the white, we asked "Which is really in the greater pain?" "Which is really the heavier?" we should be asking "What should we feel if we were to apply our telepathic and weight-discriminating faculties to this case?"

B. Certainly, and we should expect to get certain sensations on applying our faculties but we might be wrong, and not get them. But the question is not what would we mean if our faculties were different but what do we mean with our faculties as they are.

A and C. What we mean is that even in cases where the indirect evidence is of the best we don't know what our faculties for detecting pain and weight would reveal if only they were better than they are.

B. You might as well say that we don't know whether Charles I was beheaded because even in cases where the indirect evidence is of the best we don't know what our memory would reveal if it were more powerful.

A. Exactly so. That *is* what I say about the past.

B. But "memory more powerful than it is" means "memory correlated with indirect evidence more extensively than it is". So you might as well say "I like this wine and so do other judges but I don't know whether it is good because I don't know what the people who are not judges would think of it if they were much more expert than they are?"

D. This certainly isn't what's meant when we say we can't tell whether a wine is really good, can't really know the past, can't really know the future, can't really know the weight of bodies nor their states of consciousness. We are not just saying we don't know what feelings we would get from our faculties if they were greater, *i.e.* had correlated more with other clues as to consciousness, weight and the past. This comes out if we grasp that even if our faculties were improved they wouldn't give us the knowledge we lack but only other clues to set beside the old clues, only further indirect evidence. We don't know the absolute amounts of weights nor the nature of weight in itself.

We know only that objects possess a certain quality in virtue of which they produce certain appearances to us.

B. Do we know that? Don't we know only that the objects produce certain appearances? Do we know that there are any objects? You say we know only the present appearances of the past? Surely this is all we know of anything. And surely each man knows only the appearances which appear to him, his own sensations.

Black. I have said that I have seen through this puzzling talk about weight and I have seen how surprisingly congruent is the pattern of talk about consciousness and pain. But I must insist upon a difference. Indeed I must insist upon a uniqueness in the puzzle of consciousness. It comes from its involving the use of 'I', 'you' and 'he'.

I have said that even if we had an improved power of detecting the mental states of others this wouldn't be real knowledge of their mental states. This is like what is said about the weight of bodies whose weight we can't feel. But the reason for what is said about the weight of bodies whose weight we can't feel is different from the reason for saying that no telepathy gives knowledge of other minds. If our faculties were improved that would give the same knowledge of the weight as we have of the weight of cakes. Consequently, if it is to be said that we *couldn't* know the weight of feathers, it has to be said that we wouldn't know it even if we knew it like we know the weight of cakes. That is, it has to be said that we don't really know the weight of cakes, and that is said on the mistaken grounds which lead to saying that weight is something other than our sensations.

But it is not said that we don't really know the consciousness and pain of those bodies in which we do feel these. On the contrary this knowledge and the knowledge of self-evident truths are the paradigms of knowledge. One's own pain is not other and beyond our sensations—it is one of them. And if we had this sort of knowledge of the pain of others we should say we knew their pain.

No, unlike the weight case, the result that we wouldn't be knowing the mental states of others even if our faculties were improved in the way described is reached by saying that the knowing so obtained would not be the same sort of knowing as we have of our own states, not real, infallible, introspective knowing. When Gray said that we can conceive of finding our conclusions from the behaviour of people as to their inward states true or false, this was the kind of finding he referred to,

this is what would still leave meaningful the question "Is Smith in pain?", "Is Smith seeing the Union Jack in red, white and blue?" whatever our telepathic powers might become.

White. Let us look into this "knowing one's own state of mind", "knowing in like manner the states of mind of others", "expecting a sensation for oneself", "expecting a sensation for another".

(*To be continued.*)

II.—ACTION.

By Winston H. F. Barnes.

§ 1

Theory and practice are the two fundamental activities of human beings. By theory man seeks to know the universe or a part of it. In practice, he seeks to mould it nearer to his heart's desire. It is by no means impossible to argue that one or other has primacy. Theory, it may be urged, is, in the end (or perhaps one should rather say, in the beginning), always directed to practical ends; it is a stage in the achievement of practice. Or it may be said, to the opposite effect, that theory is a special branch of practice, whereby we seek to bring about a special kind of change in our own minds, *viz.*, a change from ignorance to knowledge. But such attempts to reduce one to the other are trivial. Theory and practice remain obstinately two activities, not one and the same.

Certain differences are manifest. (i) Theory has a magnificent impartiality. It ranges indifferently over the whole universe. The study of ultra-microscopic organisms and infinitesimal particles does not preclude the investigation of planetary motions or primeval man. Practice, on the other hand, is partial. It involves selection. If one change is realised, others cannot be. (ii) Again, theory can suspend judgement, can wait for further evidence, can temporise in its advance to knowledge. Practice must choose, or its whole aim may be defeated. (iii) Theory is, and must be, confined always to the universal. It does not literally grasp the individual. Practice, since it actually goes out into the world, gives rise to perfectly individual changes. (iv) Theory can readily revise its conclusions from time to time. Practice cannot in the same sense revoke. To a certain extent the arts and crafts can, it is true, experiment and revise, limited only by the amount of material available. The painter can scrap a canvas, the joiner a half-made cabinet. But the case is different with conduct. Deeds cannot be revoked.[1]

[1] This is the reason why experiment in morals, such as W. K. Clifford is said to have recommended, is more dangerous than in science or the arts.

It is with that part of practice designated conduct that ethics is primarily concerned. It is conduct, first and foremost, which is judged good or bad, right or wrong; secondarily, the character from which the conduct flows; and, lastly, the individuals themselves. Conduct itself consists of actions. Hence actions are, in an especially fundamental sense, the subjects of ethical judgement. An important question, therefore, is: What is the nature of action?

§ 2

We can best answer the question by considering different accounts of action which naturally suggest themselves.

(i) It is sometimes said that an action is the bringing about of a change in the state of affairs.[1] The term, so understood, is very comprehensive. In this sense, a man may act in his sleep or under an anæsthetic, *e.g.*, if, flinging his arm out, he knocks over a bedside table. In such cases there is the bringing about of change. Actions such as this differ but little from the *reactions* of bodies or particles in the physical world: and it seems at least doubtful if ethics has any concern with actions of this kind.[2] If we were to qualify the definition and say that action is the *conscious* bringing about of a change in the state of affairs we might seem to have satisfactorily delimited the sphere of ethics. But the definition is ambiguous. (*a*) *The consciousness may be merely the consciousness that an action in sense* (i) *is taking place.* In this case it is not possible that it should really alter the nature of the action. For example, a man through stumbling in the street knocks another man over. There is the bringing about of change and there is the consciousness accompanying it. But the consciousness in no way affects the nature of the change. It still remains an action only in the first sense of the term. (*b*) *The consciousness may be present in the form of an intention which in part determines the nature of the change originated.* In this case we have a genuinely different definition of action which we must now consider.

(ii) It seems obvious, then, that an action, in the sense in which ethical judgements are concerned with actions, is the *intentional* bringing about of a change in the state of affairs. Many, if not most, verbs of action include the notion of intention

[1] See note at the end of this section.

[2] Although actions of type (i) are not the subjects of ethical judgements, they may be the subjects of judgements, made by ethical philosophers, of the type: "Such and such an action is not the concern of ethics".

in their meaning, *e.g.*, give, reward, punish, etc. If I throw away a packet of sandwiches and a beggar finds it, I cannot be said to have given him the sandwiches. For you cannot give without intending that someone else should have something which is yours. Yet it seems that language is inconsistent on this point. For it readily admits that you can kill a man without intending his death. Nevertheless, you could not be judged to have killed a man without having *some* intention. I think we should have ordinary usage on our side in saying that there is a sense of action in which you cannot be said to be acting unless you have *some* intention, though there need not be correspondence between the action and the intention.

We encounter a difficulty here arising from the tendency of the intention and action (in sense (i)) to fall apart. The change we bring about is not always the change we intend to bring about. For example, a man throws away a currency note, taking it to be a scrap of worthless paper. In sense (i) of action he threw away a currency note, yet clearly in sense (ii) of action this is not an adequate description of what he did. Is his action in sense (ii), then, throwing away a scrap of worthless paper? This is clearly not so. If we are searching for an account of the action which is to include the intention we may perhaps say that it is throwing away a currency note *as being* a scrap of paper. But this supposed second meaning of action is based on a confusion. It purports to mean 'an action (in sense (i)) which is intended'. But the phrase has no meaning, if what is done is not what was intended. The confusion is fostered by the fact that very often the change which an agent intends to bring about he does in fact bring about. But whether the intention and the action correspond or not, they always remain two, and not one. In the end we shall have to confess that in this usage of action we are trying to combine two totally incompatible things, intention and action (in sense (i)), when in fact there is no way of combining them. To say that a man does one thing as being another is really only a confused way of saying that his intention is to bring about one thing and his action (i) is the bringing about of another.

We can now see that besides the clear sense of action (i) and the mixed sense (ii) there is left only (iii), the intending to bring about a change. In all intentional action, then, there is (*a*) the intending to bring about such and such a change; (*b*) the originating of such and such a change (*i.e.*, action in sense (i)).

At the very outset, then, ethics has to decide whether its predicates are applicable to such a thing as the bringing about of

change, or to the intending to bring about change. It is clear that once we are forced to choose, we must choose the latter. If it is to intentional actions and not simply actions that ethical predicates are applicable, then it is the intentions and not the actions to which they are applicable.[1]

Note to § 2.

It is the view of Sir David Ross that "an act is the production of a change in the state of affairs" (*The Right and the Good*, p. 42). In another passage he writes: "I would further suggest that additional clearness would be gained if we used 'act' of the thing done, the initiation of change, and 'action' of the doing of it, the initiating of change, from a certain motive" (*The Right and the Good*, p. 7). The statement seems to fall short of clarity; because, while a distinction is drawn between two things, there seem in fact to be three things involved. There is (i) the thing done, what we have called the 'deed'; (ii) the doing of it, *i.e.* the initiating of the change; (iii) the doing of it from a certain motive. (i) and (ii) are confused when 'the thing done' is identified with the 'initiation of change'. We have argued that (ii) is to be identified with an act of choice. The necessity for this identification has been given in the body of the work. It only remains to point out that the failure to distinguish between what is done and the *doing* of it gives rise to Sir David Ross's really unanalysed notion of an 'act'.

§ 3

If ethics is concerned with intentions we need to examine more closely the nature of intention. We may note first that 'intention' is ambiguous in the same way as 'sensation'. Just as by a sensation we may mean either the sens*ing* or the sens*um*, so by intention we may mean either the intend*ing* or the intent*um*. In which of these two senses is ethics concerned with intentions?

If we judge an intention to be bad it is not the intend*ing* in its own nature which is judged bad.[2] In its own nature any act of intending is neutral, neither good nor bad. Again, it is not what is intended that we judge bad, for *that* might exist in a person's mind as an object of thought simply, and not as an intended object; and then we should not judge it either good or bad. What we judge good or bad is the intending-such-and-such. Hence there is a third sense of intention in which it includes both the act of intending and what is intended; and this is the sense in which ethics is concerned with intentions.

[1] This assertion needs qualification, which it will receive later. But everything cannot be said at once.

[2] Except in the special case where we judge the intention to be bad *qua* weak.

We can see now that that to which ethical predicates are applicable is a complex, *viz.*, intending-such-and-such-an-intentum; but it is *not* the complex an-action-which-is-intended. The phrase "intending-such-and-such-an-intentum" may be replaced by "intending-such-and-such-an-action"; and this might make us think that what is being judged is the complex of action and intention. But, of course, in this expression, such-and-such-an-action means the intentum and not the action (in sense (i)).

§ 4

We must now consider some difficulties which arise in connexion with our assertion that ethical predicates are applicable to intentions. 'Admittedly', some may say, 'we speak of good and bad intentions. But we speak of good intentions sometimes to contrast them with the not so good actions with which they are associated. "The road to hell is paved with good intentions" hardly suggests that intentions rather than actions are the ultimate objects of moral judgement.' The objection is formidable. And we must admit that it is not, in all strictness, intentions which are the objects of moral judgement.

We intend many things which we never come to the point of choosing to do. A considerable gap often separates our intentions from our actions. We might maintain the position we have taken up by distinguishing between 'floating' and 'final' intentions: and maintaining that it is the latter only to which ethical predicates are primarily applicable. But it is better to reserve the word intention to cover any scheme or plan, however vague or vacillating, and to find a better word for our purpose.

There is something which occurs between intention and action, *viz.*, what we describe as choosing or deciding or resolving or making up one's mind to do such and such. The acts[1] described by these terms are the proper subject-matter of ethics. What we have said about the ambiguity of intention may be applied without change here. There is the choosing and the chosen, and the complex consisting of both together.

The variety of terms used to refer to these acts of choice demands some comment. The word 'choice' seems more appropriate (*a*) when one makes up one's mind not merely

[1] It is preferable to call these 'acts' and to reserve the word 'action' for the originating of change itself; since it is customary to speak of 'acts of will' not 'actions of will'. I am sorry to depart in this from Sir David Ross's usage; but I cannot help thinking that he has departed from the more normal usage.

between doing or abstaining from doing but between doing this and doing that; (*b*) when one's own interests are more heavily involved than the interest of others. Both 'decision' and 'resolution' are appropriate when the deliberative process is of a more formal character. Again, 'resolution' is particularly used when some time elapses between the choice and the action.

With these slight variations of meaning in mind, we may refer indifferently to choices, decisions or resolutions, using any one of these terms in a somewhat extended sense to cover the whole field. There is another word which seems to cover the same ground and has the advantage of being technical, *viz.*, volitions. Most philosophers have used the word to denote these acts of making up one's mind to do such and such actions; and by will they have meant the capacity for so making up one's mind. But, unfortunately, not *all* philosophers have so used these words. Moreover, being technical terms, the words do not suggest the actual reality they denote so well as the everyday terms; so that it is easier to be misled in the use of them. This being so, it seems wiser to retain the words in common usage, having noted the extension of that usage which philosophical thinking makes necessary. Prof. Prichard has introduced another phrase with what seems to me to be the same meaning, *viz.*, *setting one's self to do* such and such an action.[1] It may be argued that this is something which intervenes between the decision to act and the acting, but (*a*) there does not seem to be anything which intervenes when I decide to do something at once, *e.g.*, to get up from my chair; and (*b*) when I decide now to do something at some future date, I am not sure that I need to set myself to do it at that future date. The decision in the past seems sufficient to bring about the action, though by what intervening causal process we do not know.

Note to § 4.

Many attempts have been made to find a concept of action which shall include both the internal intentional aspect and the external outward change. B. Croce goes so far as to maintain that will and action are the same (*Philosophy of the Practical*). This view is not very dissimilar from the view expressed in this paper, though the conclusion which is here reached by argument is enunciated dogmatically by the Italian philosopher. Moreover, it seems misleading to use the word action for the *internal* aspect of action and we prefer to keep it for the external *deed*, the 'action'.

[1] Prof. H. A. Prichard, *Duty and Ignorance of Fact* (Annual Philosophical Lecture to the British Academy, 1932), p. 24.

§ 5

We have distinguished between the bringing about of a change and the decision or choice to act in such and such a way. One rather surprising fact must now be noticed. The *bringing about* as distinct from both the change that takes place and the decision to bring it about is non-existent, an *Unding*. There is the decision to do so and so. Unless this is wholly without effect in the world, it is followed by a series of changes. There is nothing between these two which we can call the originating of the change unless we arbitrarily dignify the first part of the change by this name. And this would be pointless.

To designate the change which results from choice we may use the word 'deed'. A difficulty arises in the fact that not all the changes can reasonably be considered to be the deed: some are undoubtedly consequences of the deed, not the deed itself. We cannot say that the deed consists in those changes which I choose to bring about. (i) For as we have seen in the case of throwing away a currency note, thinking that it is a scrap of worthless paper, the deed is the currency note's changing of its position and this is not what I chose or any part of it. (ii) If I choose to read now for an examination a year hence, my choice includes in its content this-work-now-as-a-means-to-my-future-success-in-the-examination. But we cannot say that the deed thereby includes the future success in the examination (even if this does follow). Clearly, then, the deed may at times be something less than what I choose as well as at times something other than what I choose. There seems no way of distinguishing the deed from its consequences that is not arbitrary. We take it to be the first part of the change, but how far this is taken to extend is a matter which cannot be decided on any definite principle. What we must remember, however, is that a deed is a change which has come into existence as a result of choice; it is *not* the originating of the change.

§ 6

What we have, then, is on the outer side a series of causally connected events both in the agent's body (behaviour) and usually also in other physical bodies and, perhaps, also, in other minds (change); and on the inner side a choice, decision or resolution to bring about certain changes.

The notion of choice or decision suggests a momentary activity which, flaring up for a moment, dies down to be succeeded by

changes in the world, either those intended or, in cases of failure, changes not intended by the agent. Such indeed is the conception of human activity emphasised in the proverb, "You have made your bed, and you must lie on it". And it certainly corresponds to the form which human activity takes on some occasions. There are choices which, when once made, condemn us simply to contemplate the ensuing changes. Just as a mariner in unknown waters may set a course for home and simply wait and watch the resulting onward passage of his ship. But often enough, we are not the slaves of our initial choice. And if not, then our initial choice is merely provisional. As the choice works itself out we see the changes that ensue, and, seeing them, see, perhaps, that they are not what we intended; whereupon we intervene again with our choice to determine them in accord with our intentions. In a *course of action* we may be constantly choosing in the light of the new changes and the new ways of action they suggest. In such action we resemble the mariner who steers his ship by the familiar landmarks on his route. He is at the wheel the whole time, and his steering goes on concurrently with the ship's progress.

No doubt most action is of this latter kind. And hence the denial by some philosophers that the choice *precedes* the changes which take place. Both, it is urged, take place side by side, forming an inner and an outer aspect of a single indivisible activity. It is urged that there is no act of will which fails altogether to be also a physical movement. It is only when some physical changes (in the body, at the very least) take place, that the volition can be said to have begun its existence.

Such a view, in attempting to do justice to the fact that in most action there is revision of the initial choice by further choices, not passive acquiescence in its consequences, errs in denying the temporal priority of choice. When the captain of a ship repeatedly orders changes of course, the total route which the ship actually traverses is not intelligible as the result of a single setting, made as the ship left port. But it is true nevertheless that the route is made up of portions each one of which resulted from a setting preceding it in time. So it is with a course of action. If, after choosing a line of action, one was compelled to acquiesce in the consequences, with no possibility of subsequent intervention, this primary choice would be the proper subject of ethical predicates. But since the faculty of choice is not extinguished in choosing, but remains active throughout, what we judge is the faculty of choosing as it

manifests itself not only in the primary choice but in all the secondary choices which arise in a course of action.

These secondary acts of choice, as indeed some primary acts of choice, rarely obtrude themselves in consciousness. Hence the word choice, in ordinary usage, denoting as it usually does primary choices of a more or less obtrusive character, has a more restricted meaning than that which we require it to possess in philosophy.

Note to § 6.

Prof. T. M. Knox, in his inaugural lecture on Action reprinted in *Philosophy*, Vol. XII (1937), pp. 413-423, says: "The historian—and the moral philosopher—mean by *action* not simply what is sometimes called behaviour, *i.e.* the event which can be observed *ab extra*, nor simply the intentions or motives or thoughts which lie behind or lead to the behaviour, or the event, or the thing done; they mean both of these together, for they are the subjective and objective sides of the same thing, just as unintelligible in isolation from each other as the concavity and convexity of a curve" (pp. 414-415). With the first part of the statement we must agree, because it is neither behaviour nor intention but choice which is the subject-matter of ethical judgement. But there is no truth in the analogy between action as including both choice and behaviour and a curve which is both concave and convex. For (i) choice may be there, though observed change fails to take place (through death, etc.), whereas concavity cannot be present without convexity; (ii) the relation between choice and observed change is (*a*) temporal and (*b*) causal, whereas that between the concavity and convexity of a curve is one of necessary implication.

Prof. Knox does indeed use the words *decision* and *choice* to signify the unity of subjective and objective elements. The decision, he says, "is the moment of choice and in it are simultaneously actualised the choosing, the thing chosen, and the things rejected" (p. 417). This obscures the issue. In the moment of choice, the choosing is actualised, but the things chosen and the things rejected are only present ideally. If the choice fails to bring about changes in conformity with the intention embodied in it, then the thing chosen is not actualised.

In an address to the Aristotelian Society on 'Choice' (*Aristotelian Society Proceedings*, Vol. XXXIV, 1933-34, pp. 269-294), Prof. O. S. Franks attempted to evolve a conception of action which should include both the choice and the resulting change. Action, he concluded, is "the realising by a self-conscious agent of a chosen policy of conduct in and through the series of events" (p. 286). And again, he asserts that "any moral action contains within it as necessary and distinguishable elements, choosing and doing" (p. 289). But against this we may urge: (*a*) apart from choosing there is no such thing as doing; there are only the changes which take place as a result of the choice; (*b*) as Prof. Franks himself admits, the choice may fail to be followed by any change (or, as he would say, any doing); (*c*) even when the choice is followed by a change, the content of the choice, *i.e.* what is chosen, may fail to correspond in any way with the change that actually occurs.

Prof. J. L. Stocks, in a fragment on "Will and Action in Ethics" (*Reason and Intuition*, pp. 227-256), implies what appears to be the view

that the proper subject of ethical predicates is choice. "The assertion that an action is good . . . is reducible to the assertion that the will embodied in the act is good" (p. 235). But he points out that we only know what a man's will is from his acts. "The unrealised will is a day-dream of disappointment—a theory of what we should have willed if circumstances had been different" (p. 239). While giving assent to the general principle that a man's choice is revealed in his action and even more in his course of action, it is too extreme a view to say that unrealised will ceases to be will and becomes a mere day-dream. Will—genuine will—may certainly fail of realisation because of death or illness. Equally, then, it *may* fail because of obstacles in the outer world. That what is in fact a mere day-dream may sometimes try to pass itself off as a will, is, of course, true.

§ 7

Choice, then, is ever changing, adapting itself under the guidance of intelligence to a changing situation. This conception of choice enables us to solve what would otherwise be a serious difficulty in maintaining that it is a choice upon which we pass ethical judgement. When we speak loosely we say that a man's duty lies in bringing about a change X. Strictly, his duty lies in the choice of X in preference to other possible objects of choice. He has to consider how best he may bring about X. He decides, let us say, that α will be a means to bring about X. He consequently chooses α and α does in fact occur. Nevertheless, perhaps, X does *not* result, as he expected. May we say that he has done his duty? Clearly not, for we should be taking into account only primary choice, not secondary choice. It is a choice that persists, *a course of choice*, if we may so put the matter, in which duty consists. Nevertheless, if his choice persisted in its orientation, constantly seeking different means towards its chosen object, we should say that he had done his duty, even though a malignant fate denied him the fulfilment of the choice.

Much light is thrown on the question if we consider an ambiguity attaching to the phrases, "failing in one's duty", "doing one's duty", etc. The ambiguity may be illustrated in the following way: Suppose a government agent entrusted with the delivery of a document to another official in a foreign capital. Suppose, firstly, that on arriving there he gives way to the temptation to enjoy himself and does not bother about the document. We should have no hesitation in saying that such a man "failed in his duty" or "failed to do his duty"; and we should say this, *whether or not the document arrived safely at its destination*. For example, if he recklessly handed over the document to a stranger who, unknown to him, was working for

the same government, and who handed it over to the official for whom it was intended, we should continue to assert that the agent failed in his duty. And that is the view his government would undoubtedly take of the matter. Suppose, on the other hand, the agent bent all his powers towards delivering the document, but was thwarted at every turn, we might also say that he "failed in his duty". And even if we did not say so, we should seem to imply that he did, if we said (as we might) that his duty was to deliver the document and he failed to deliver it. But it is obvious that there are two different senses to the expression. "To fail in one's duty" may mean: (i) Not to *aim* at bringing about that which it is one's duty to aim at bringing about. (ii) Not to *succeed in bringing about* that which it is one's duty to aim at bringing about, although aiming to do so. If we reserve the expression "failing in one's duty" for (i), then the second is better expressed by saying that the doing of one's duty was not crowned with success. When Sir David Ross says: "Success and failure are the only test, and a sufficient test, of the performance of duty",[1] I cannot help thinking that he has not considered this ambiguity. At any rate, it seems to me important; and to show that success and failure test merely whether or not a man has done his duty in sense (ii), *i.e.* whether a man's doing of his duty in sense (i) is crowned with success or not (a purely tautologous proposition).

We may conclude from this that there is an important sense of "doing one's duty" and "failing in one's duty" for which the question whether one's endeavours are crowned with success or not, is irrelevant. And this seems to be the ethically significant sense of these expressions. Consequently we may say that a man's duty is a persistent choice, not a producing of anything. We may admit, however, that *for practical purposes on many occasions*, a good criterion as to whether a man did his duty, *i.e.* whether he formed a certain choice, is afforded by knowledge as to whether the situation did in fact come about. Particularly is this so in cases where we can be fairly certain that no great obstacles exist to the bringing about of the situation. But this is not the only criterion. For instance, whether the captain of a ship did his duty in a storm may be ascertained better by asking the crew whether he took certain necessary measures or merely sat drinking in his cabin, than by inquiry whether the ship reached port safely (assuming the captain's duty is to bring his ship safely to port, *i.e.* to choose means to this end).

[1] *The Right and the Good*, p. 45.

Choice, as subject of moral judgements, involves persistence and intelligence, will-power and insight. But insight is subordinate to will-power. Provided that a man brings that amount of insight which he possesses to bear upon the situation he cannot be blamed for mistaking or failing to see certain aspects of it.

There is every reason for thinking that, when choice is persistent and intelligent, it *tends* to be successful. (i) To strive for a certain end introduces into the situation a causal factor whose effectiveness is incalculable. By virtue of its persistence this factor constantly operates at its maximum. (ii) By virtue of intelligence choice can take account of causal factors tending in the opposite direction and thwart them. It can also devise means of creating individual existences sufficient to bend the course of events in its favour, instead of merely waiting for opportunities.

§ 8

Although the genuine subject of moral judgement is choice or will, the tendency of what is chosen and what actually results to approximate makes it permissible often to pass judgement upon deeds. In so doing, however, we assume that the deed as it actually exists was chosen or willed; and it is as such that we judge it. If we have reason to think that any part of it was not chosen, we are ready to revise our judgement. Secondly, since we have neither direct acquaintance with the choices of other people, nor any infallible knowledge of our own choices, the nature of the deed is the strongest evidence for the nature of the choice. But it is not the only evidence. Second only in importance is any knowledge we may acquire of how the situation in which he acted appeared to the agent.

What we have, then, is on the outer side a series of causally connected events both in the agent's body (behaviour) and sometimes also in the world (change); and on the inner side a choice, decision or resolution to bring about certain changes in the situation.

§ 9

We must now say something further about choice. A choice is always, or almost always, complex; it is a choice of-this-or-those-means-to-this-end. Choice is never merely of an end or merely of the means to an end. We may be said to desire something, X, as an end and so to have as our motive in acting,

if we do act, the desire for X. A man has in his nature dispositions to desire such and such a sort of thing, which dispositions are liable to be actualised in suitable situations, and when actualised are called desires; when we consider these desires as a first step towards action, we call them motives. But the process by which a desire, *i.e.* an aroused disposition, leads to choice is not simple. A desire for something, or to do something, is relatively blind; it arises before the whole situation has been reflectively surveyed. It stimulates to a survey of the situation. Since the details of the situation are not yet known, a desire is necessarily general in its object. It may be a desire to eat; but what to eat it leaves undecided. Yet if I am to eat, I must eat something particularised through and through. I cannot eat food in general. It may be a desire to help some one I know to be in a difficulty. But how? By money, by advice, by an offer of lodging? All this the desire in itself leaves unspecified. When, under the stimulus of the desire, I turn to survey the situation, I consider how it is possible to realise the desire; *i.e.* I consider (i) the things which I can make use of to accomplish my desire, usually referred to as the means; (ii) the steps I must take in the use of these means; (iii) how the gratifying of this desire will affect other potential desires; (iv) how the gratifying of this desire will affect the claims of others upon me. These seem to me the main objects of consideration, though perhaps a more exhaustive list could be drawn up. This process of reflective consideration takes place between the onset of desire and the formation of choice.

It is, perhaps, unwise to say that desire is for this-end; and choice is of this-means-to-this-end. For the contrast is only inadequately expressed in terms of means and end. Better is it, perhaps, to say that desire is for this-as-such-and-such, and choice is of this-as-specified-under-limitations-of-means-and-manner-and-rival-claims, etc. But if we bear in mind that the means must be understood to include not only those things in the situation that I can command as instruments, but also my using of them, and further, every factor which tends to specify my purpose more narrowly, there is little risk of confusion.

Of course, we do not deliberate on every occasion or on *all* the situational features involved on any occasion. We bring with us to our deliberation, in our character and acquired rules of conduct, a great deal of what we may call 'funded' deliberation. Yet there is nothing unalterable about all this. At any moment a critical situation may call upon us to deliberate

XUM

even about our accepted rules of conduct; or in a turning-point in life, about the whole basis of our accepted rules. Moreover, we may and should from time to time overhaul our accepted rules. Where deliberation is absent, the act of choice may not be prominent in consciousness. But we have no reason for doubting that it is there, and every reason to suppose that it must be.

Choice, then, is of a more highly specified line of action than that which is the object of desire. The action itself will be completely individual and determinate in every respect. Even if the choice is fully realised, the action will possess many features not forming any part of the chosen. For example, if I choose to help my friend with currency notes, I do not, in choosing the notes, consider what their texture is, or their number. My aim in choosing is to consider only those features of the projected action which are relevant.

In a way which we cannot explain, choosing or resolving to do some particular action is followed by certain events. The one is an efficient cause of the other. But we must enter a caution here. (i) In the first place, the action need not take place immediately. I resolve on Monday morning to begin the writing of a chapter of my book on Ethics on Thursday at 10 a.m. Although separated by two days, the resolution is none the less the cause of my beginning to write on Thursday. By what intermediate steps, if any, its efficient agency is made possible we do not know. (ii) Secondly, the action may be prevented from taking place by death, sleep, or forgetting; or by a change of mind; or by fresh knowledge revealing an insuperable obstacle. We may note that the efficient agency of a resolve to do some action in the future may be strengthened by what we refer to as "impressing it on our memory", a procedure familiar to all of us.

§ 10

What is the nature of motive and intention, and what is the relation of both to choice? We may note first some differences between the two as they actually suggest themselves. The motive, as its name suggests, is the driving force, as working itself out through the intention; the intention is the policy of action in all its detail. Let us consider the case of Hamlet. The motive is revenge; the intention is to kill his uncle. Such, at any rate, is the way in which we would normally apply the two terms in this instance. It is implied that Hamlet possessed

a disposition to desire vengeance, which would be actualised as a desire for vengeance in certain circumstances, amongst which are those in the play, *viz.*, his own father being murdered by his uncle. His desire, then, is to strike down his uncle as being the man who murdered his (Hamlet's) father; and we should have to add, who murdered this man though he was his own brother; and in order to acquire his throne; and to marry his wife, etc. The desire of vengeance derives its special nature from the known circumstances of the crime. Moreover, all these circumstances are relevant in the formation of the intention. For the intention is the plan of action which is to fulfil the desire for vengeance. It is the detailed working out of the motive; and many of the details are determined by reference to the special circumstances we have mentioned: *e.g.* since his (Hamlet's) father was cut off before he could repent of his sins, the uncle too must be granted no respite for repentance, etc. Yet other details are determined by the circumstances existing at the time, the opportunities for action. The cry is "Hamlet, revenge!" But how? What kind of revenge? Partly (i) the motive must itself have become more explicit. "He must suffer; *and in this way*, because he made my father suffer in this way." In this sense the motive may be thought of as the form embodied in the intention; the resulting intention might be called the *ideal intention*. But (ii) the motive must not only develop itself freely into a detailed plan; it must also develop in such a way as to accommodate itself to the conditions prevailing. If, and only if, it develops in this way have we a *real intention*. When this process is as complete as it possibly can be before any overt change can be initiated, a primary (provisional) choice takes place, which embodies the real intention. In the course of subsequent acts of choice the intention is further specified with reference to the developing situation: and the whole course of choice is the proper subject of ethical predicates.

III.—BERKELEY'S EXISTENCE IN THE MIND.[1]

By A. A. Luce.

We find existence in the mind asserted and existence outside the mind denied scores of times, probably more than a hundred times, in the *Principles*.[2] In the earlier portion of the work there is scarcely a section without a reference to the doctrine. The term *in the mind* is clearly a hinge of Berkeley's system, and it has been persistently misunderstood, in my opinion, from his day to ours.

Kant took it to mean that 'the objects in space are mere products of the imagination'.[3] Critics to-day are reluctant to attribute such nonsense to a sensible thinker; but many of them make much the same mistake as Kant. They put the charge less bluntly and more broadly; for Kant's words 'products of the imagination', they would substitute 'products of our faculties'; but that change would not affect the gravamen of the charge, *viz.*, that Berkeley's existence in the mind is mental existence.

My task is to show that by existence in the mind Berkeley does not mean mental existence, but does mean non-mental existence, perceived or perceivable by the mind.

If by existence in the mind Berkeley had meant mental existence, he would have said so, we may be sure. He was not the man to use four words habitually where two would do. The term *mental* occurs in Locke. Berkeley uses it in his *Commonplace Book* (740, 805, 821), and occasionally in his published works (*e.g.*, *Princ. Intro.*, 9), but always in its proper meaning, *i.e.*, 'of or belonging to the mind'. He nowhere applies it,

[1] References to the *Three Dialogues* (abbrev. *Hyl.*) give the page number of Fraser's edition (1901) of the *Works*. References to the other works give the section number. For the *Commonplace Book* (*CPB*) I use Johnston's numbering of the entries.

[2] The *Three Dialogues* is equally insistent on the point from start to finish.

[3] *Refutation of Idealism.*

or, as far as I have observed, any equivalent term, to objects of sense.[1] No, Berkeley's key phrase does *not* mean mental existence.

What it does mean is clearly stated at the first occurrence of the term in the *Principles*, section 2.[2] In the previous section Berkeley has described his first type of created reality, *ideas*, and now he turns to his second type, *mind*, *spirit*, *soul* or *my self*, and says, 'By which words I do not denote any one of my ideas, but a thing entirely distinct from them, wherein they exist, or, which is the same thing, whereby they are perceiv'd'. This is official doctrine, explicit, decisive, and often repeated. To exist in the mind, for Berkeley, is to be perceived by the mind, and yet to be entirely distinct from the mind. From this definition he never deviates. This is his axiom, his New Principle, the positive aspect of his denial of matter. There is no matter, he teaches, because 'we eat, and drink, and are clad with the immediate objects of sense which cannot exist unperceiv'd or without the mind' (38). Objects seen, touched, heard, tasted, or smelled, sensible qualities or things or ideas, sensations, *sensa*, or *sense-data*, call them what you please or what fashion dictates, they, one and all, when I perceive them, are in my mind, only in my mind, and are entirely distinct from my mind; and *that*, says Berkeley, is what I mean by existence in the human mind.

Now *mind*, in Berkeley, may also mean the divine mind; and this and other ambiguities, or should I say obscurities, in the key phrase require to be cleared up before we go further.

Berkeley's term *in the mind* is flexible, at times indefinite, but it is not intentionally ambiguous; if it is ambiguous to us,

[1] I have carefully verified this statement with regard to the *Principles* and the *Three Dialogues*, which together constitute the proper field of Berkeleian exegesis. The only doubtful terms, to my mind, are *notions* and *passions*. The former is applied to things of sense in *Princ.* 5 and perhaps, 74, the latter in *Princ.* 89. Both designate the object of knowledge, not the subject. *Notion* is one of the vaguest terms used by Berkeley. *Passion* is the equivalent of *passive entity*, and does not mean emotion. Both terms may be relics of the early stage of his thought (reflected in the first part of the *Commonplace Book*), when *mind*, for him, was passive, and not distinguished from its contents. The nearest approach to *mental existence* is *notional existence*, which in *Hyl.* 426 is opposed to *real existence*, real existence being repeatedly in the context predicated by Berkeley of things of sense. On *notional*, as used by the Objector in *Princ.* 34, see below, p. 263.

[2] Many other sections, notably 7, 14, 23, 24, 33, 38, 41, 82, 86, 87, 90, 94, 124, may be cited in evidence, but I shall here concentrate upon sections 2, 34, 45-48, and 49, because in them Berkeley is expressly expounding the meaning of the term.

we must not blame Berkeley. It is an elastic term, and to a certain extent it takes its colour from its context, and the reader has to be on the alert about it. Take first the preposition. The *in* is the equivalent of *in relation to;*[1] but the full phrase is too awkward for general use. In our idiom 'I have it in mind' is a neat expression for the cognitive relation in general, and Berkeley is correct linguistically in using 'in the mind' as an abbreviation for 'in direct cognitive relation to the mind'. The phrase is not to 'be understood in the gross literal sense'.[2] Monday is *in* the week, or as the act of synthesis is *in* conception. The preposition implies, not situation in, nor forming part of, but apprehension by.[3] Thus the British Museum is in my mind, Things are not *in* the mind, as the brain is *in* the head, or as when I am in the British Museum, provided I am perceiving it or thinking about it.

Then analyse the noun. *Mind*, in the *Principles*, is a very flexible term. It may mean the divine mind or the human mind, or it may be the negation *not-matter*. When Berkeley is merely the controversialist, attacking materialism, his *in the mind* means *not in matter*. Matter, *ex hypothesi*, is outside the mind and beyond its range. Berkeley says there is no such thing; he has looked; the things he sees and touches are in his mind and not outside. But of course he does not long remain at the stage of denial; *mind* soon becomes to him positive and a substance. It may be only mind in general, at the outset; for he can go a long way on that road without being specific; but sooner or later he has to distinguish sharply between the mind of God and the mind of man. And he does so. When he is drawing the line between sense and imagination, or between the perceived and the perceivable, the contrast between mind infinite and mind finite steps into the centre of the stage. Idealists to-day may think of mind as a vague, impersonal ether of spirit; but to Berkeley mind was minds, the mind of God or the minds of men.[4]

Having cleared up these ambiguities I return to my point

[1] *Cf. CPB*, 814; *Princ.* 3; and *Hyl.*, pp. 384, 453.

[2] *Hyl.*, p. 470. This passage is perfectly explicit, and deserves careful study.

[3] *Ibid.* 'My meaning is only that the mind comprehends or perceives them.'

[4] Berkeley moved in circles keenly alive to this distinction. His Provost in T.C.D., Peter Browne, made analogy without identity the cornerstone of his philosophy. His archbishop, William King, carried the distinction to the extreme, virtually denying all resemblance, and making divine thought and will as metaphorical as divine hands and feet.

that existence in the mind is *not* mental existence. I shall be met with the argument that Berkeley called things of sense *ideas*, which is equivalent to calling them mental. He does call them *ideas* of course; in his early books[1] he tried to establish the usage, because *idea* implies immediacy and 'a necessary relation to the mind'. It was a young man's experiment in technique, reasonable enough in its day, defensible by experts, but doomed to failure at the bar of average opinion. It was like trying to get the man in the street to-day to call shoes and ships and sealing wax *sense-data*. They are *sense-data*, but the term is too technical to make good. The Berkeleian idea of sense is exactly the *sense-datum;* but to apply either term to things opens the door to misunderstanding and to ridicule. But we must not make the wrong inference from this mistake in tactics. In calling things *ideas* Berkeley did not mean that they are mental; for he meant the opposite.

Mind and idea are sharply distinguished in Berkeley's philosophy. Mind is active; the idea is passive. He was an uncompromising dualist; he takes the thing into the mind, but does not let it become the mind, nor infect the mind, nor merge with the mind. He takes it in, but keeps it at arm's length. The thing of sense is *so* in the mind as to remain distinct from the mind. This distinctness is formally stated at the first mention of existence in the mind (*Princ.* 2), and is repeated with growing emphasis at several turning-points of the argument (*e.g.*, sect. 27, 86, 89, 139). Berkeley seems to have become, as he worked, more and more conscious of the activity of active mind and the passivity of passive idea. They are 'two kinds entirely distinct and heterogeneous, and which have nothing in common but the name' (thing or being, sect. 89); they are 'natures perfectly disagreeing and unlike' (sect. 139). He taught the same thing ten years later, 'Duo sunt summa rerum genera, corpus et anima'.[2] Within the truth of the creation Berkeley was a convinced dualist. He believed that God made the finite spirit and the sensible world, creating the one for the other, giving man's mind to know and the things of sense to be known, but not giving to either the power to produce or generate the other. The key phrase must be interpreted by the key doctrines; when Berkeley says a thing is *in the mind*, and calls it an *idea*, he thereby says that it is not a mental existence.

[1] *Hyl.*, p. 453. Berkeley never quite abandoned this technique; even in *Siris* he once or twice calls things of sense *ideas*.

[2] *De Motu*, 21.

The root of the trouble is the assumption, natural but mistaken, that to an immaterialist things must be mental, because there is nothing else for them to be. If there is no matter, then all is mind; so argues the average man, because he starts from the equation, All reality is mind and matter, and, on subtracting matter, is left with the equation, All is mind. Now there is no subtraction sum of that sort in the *Principles;* Berkeley nowhere says that all is mind, and he says things [1] quite incompatible with that wild fancy. The more firmly he asserts the mind and its rights, the more firmly he asserts the not-mind too. There is nothing outside the range of mind, for him, but there is much that is not mind. There is, to take a striking instance, the brain. Berkeley says that the brain 'being a sensible thing, exists only in the mind'.[2] Of course he does not mean that the brain is the mind, or is mental; he means that it is immediately perceived or perceivable.

Berkeley *so* denied the material as to assert the sensible. Giving up matter he held on to sensible things and the sensible world. His phrase *in the mind* was the war-cry, not of monism, nor mentalism, nor subjectivism, nor solipsism, but of direct awareness. He maintained a two-term theory of perception, and was up against thinkers, notably Locke, who held a three-term theory and put reality outside the mind. Knowledge is not knowledge, argued Berkeley, if the real be outside the mind, and only a pale copy thereof within. He insists, quite sensibly, that sensible reality is in the mind, is not outside the mind, exists only in the mind, and has neither absolute nor twofold existence. Existence in the mind is the elimination of the third term from knowledge, the removal of the cataract from mental vision, and the assurance that we see what we see, and not a *tertium quid.*

A river in brown flood builds its banks, while appearing to break them down. Berkeley's thought is like that river. It breaks matter, but builds the sensible. It destroys absolute existence, but establishes relative existence. It abolishes twofold existence in order to lay well and truly the foundation for the simple existence of the thing perceived. Thus Berkeley restores our native confidence in our senses, assuring us that what we actually sense is there, is given, is in our minds when

[1] *E.g., Princ.*, 35. 'That the things I see with my eyes and touch with my hands do exist, really exist, I make not the least question. The only thing whose existence we deny, is that which philosophers call matter or corporeal substance.'

[2] *Hyl.*, p. 421.

we are minding it, and that when we are not minding it, it is still there, still offered, still in the mind of God.

Berkeley had the dramatic talent; he was able to think and feel with the other man, and he knew just where his opponent would misunderstand him. He foresaw the three main misrepresentations of his philosophy, and he deals with them as, respectively, the first, the fourth, and the fifth Objections to it.[1] In each of these passages he makes important statements about existence in the mind. We will consider them in order.

'By the foregoing principles, all that is real and substantial in nature is banish'd out of the world; and instead thereof a chimerical scheme of ideas takes place. All things that exist, exist only in the mind, that is, they are purely notional.'[2] That is the first Objection, Kant's objection, and the gist of it is that Berkeley gives things of sense only a mental existence, and thereby obliterates the distinction between real and imaginary. Berkeley, in reply, refers to sections 29, 30, and 33 to prove that on his principles, (1) the things we see, hear, touch, etc., really exist; (2) there is a *rerum natura;* and (3) the distinction between real and imaginary retains its full force.

In other words, Berkeley requires us so to understand existence in the mind as to preserve intact the real existence of the sensible world, the laws of nature, and the contrast between real and imaginary.

Can it be done? I do not see why not. I, for one, have no difficulty at all about it. I hold existence in the mind, in what I take to be Berkeley's sense of that term, and I believe in the reality of the sensible world, and in laws of nature, and I can tell the difference between real and imaginary; but, of course, one has to accept *ex animo* Berkeley's contention that the realities of sense are significant entities (*ideas*), produced and sustained by omnipresent Deity, and 'that they are not fictions of the mind perceiving them' (sect. 36).

Turn now to the fourth Objection (sects. 45-48). It is vividly summarised in the objector's cavil, 'Upon shutting my eyes all the furniture in the room is reduc'd to nothing, and barely upon opening 'em it is again created'.[3] The objector is urging

[1] *Princ.* 34, 45-8, 49.

[2] The words, 'that is, they are purely notional' are not Berkeley's, but the objector's gloss; *cf. CPB,* 540, which contains this passage in brief.

[3] Some readers have taken these words as representing Berkeley's own views; and I grant that these sections are not as carefully written as most; but the words are *not* his views, and the fact becomes quite plain, if sections 45 and 48 are read continuously. The insertion of sections 46, 47 has obscured the main sequence of thought.

that on Berkeley's principles things are every moment annihilated and created anew, that sensible things, being ideas, must have only an intermittent existence, dawning in and fading out like the Cheshire cat in *Alice in Wonderland*, or like the fairy, Tinkabell, in *Peter Pan*. After stating the objection in section 45*a*, giving it its full force, Berkeley (sect. 45*b*) replies in effect; well, even if that charge be a true bill, it shall not move me from my primary intuition, nor make me assent to meaningless propositions. I actually perceive the tree; therefore it exists; and to claim for it an existence outside all mind at bottom has no meaning.

At this point Berkeley digresses; in sections 46 and 47 he points out that intermittency is accepted by Lockeians and Cartesians in respect of the 'secondary qualities', and that annihilation and continual creation are taught by the Schoolmen, and are assumed by the materialism of his day, notably in the infinite divisibility. These are *ad hominem* arguments only, designed to secure side-wind for his sails; for he did not accept Locke's 'secondary qualities', nor Malebranche's 'modifications of the soul', nor the 'matter' of scholastic and mathematician. He makes his position plain when he returns to his main argument at the opening of section 48. He says that we are not to conclude that objects of sense 'have no existence except only while they are perceiv'd by us, since there may be some other spirit that perceives them tho' we do not'. He then expressly denies that annihilation, continual creation and intermittency follow from his principles. As to whether they can be held along with his principles, he is silent; he does not commit himself one way or the other. But he clearly dissociates himself from those tenets, when he speaks of some other spirit perceiving the objects of sense 'tho' we do not'. Without a doubt then Berkeley's official teaching on existence in the mind is that objects of sense may go in and out of the small circle of the mind of man, but do not thereby go in and out of existence; for they are conserved in the great circle of the mind of God. Therefore the furniture in the room is not reduced to nothing when I shut my eyes.

Now to the fifth Objection, our third and final passage (sect. 49), 'If extension and figure exist only in the mind, it follows that the mind is extended and figured'. This is a damaging criticism on the traditional view of the Berkeleian philosophy, but does it no harm on a true view. The objector raises the searching question, What does existence in the mind involve for the mind itself? If the divine mind be in view, Berkeley

is charged with Spinozism and the deification of space; if the human mind be in view, he is charged with the denial of the distinction between mind and body. Berkeley's reply takes us right away from traditional Berkeleianism. He states positively what he means, and negatively what he does not mean, by existence in the mind. Extension and figure, he says, 'are in the mind only as they are perceiv'd by it, that is not by way of *mode* or *attribute* but only by way of *idea*'. The way of *mode* or *attribute* is Spinoza's way, the way of pantheism and mentalism, and the way back to materialism. Berkeley rejected that way; for him there can be no confounding of distinct natures, no fusion of mind and not-mind, no infecting of subject by object. He substitutedthe way of *idea*,[1] explaining it to mean that things 'are in the mind only as they are perceiv'd by it'.

Why should not Berkeley be taken at his word? In view of his plain, reiterated and common-sense statements, what is the point of making the man into a mystic, and his chairs and tables into mental entities? 'My meaning is only that the mind comprehends or perceives them' (*Hyl.*, p. 470). Why not give the speaker credit for ordinary sincerity? It is no compliment to try to make him mean something subtler than he says he means. Berkeley simply takes his stand on the facts of perception, and bids his readers understand perception, if they would understand his existence in the mind. 'The way of *idea*' is the way of the object which is not subject, the way of the immediate object which is the only object, the way of direct awareness, and that is the only way, for Berkeley, in which things are in the mind, because it is the only way in which things are perceived. His ideas of sense are sensible ideas, passive entities in the active mind, not mental, nor partaking in the nature of mind, not modes or attributes or properties of mind; they belong to a different *genus*. Often unknown by man, they are always knowable; they can be perceived and known, as trout can be angled for and caught. Berkeley nowhere teaches that the human mind is creative, constitutive or generative; he just teaches the common-sense doctrine that when a man minds a thing, that thing is in his mind, and therefore is not in matter.

[1] The phrase deserves more attention than it has received. It is quite technical with Berkeley; it occurs again, *Princ.* 142, 'our souls are not to be known in the same manner as senseless, inactive objects, or by way of *idea*', and by implication in *Hyl.*, p. 455, 'in which they exist, not by way of mode or property, but as a thing perceived in that which perceives it'. See also *Hyl.*, p. 470, for the same contrast, and *Hyl.*, p. 458, for the impassibility of the divine mind.

XUM

We have studied Berkeley's direct statements about existence in the mind, his answers to objections, and the general tenor of his philosophy, and the results of all three lines of study agree. Before I sum up and have done, I must make a brief reference to the 'development' of Berkeley's thought; for some would blunt the edge of my argument by asserting that there were two Berkeleys, and that I have concentrated upon the realist aspect of his teaching, and have ignored the idealist aspect, "refuted" by Kant. I reply that the statement that there were in fact two Berkeleys cannot be substantiated. I believe, after close study of the question, in the unity of the Berkeleian philosophy. There were not two Berkeleys, at any rate during the period that matters, from 1710 to 1713 inclusive, the period during which he published his full philosophy. My first quotation on existence in the mind was from the opening of the *Principles*, my last was from the closing pages of the *Three Dialogues*, and the two quotations are in complete agreement. Over that period, about existence in the mind there is not a shadow of turning. I am prepared to admit a marked change of view before that period began,[1] a change which enhances the significance of his final decision. Berkeley had faced the issue; he had hesitated and deliberated; he had toyed with subjectivism, and had learned to distinguish *in the mind* from *of the mind*. When he was making the opening entries in the *Commonplace Book*, he did, I think, entertain the view that existence in the mind is mental existence; but the later entries tell a different story,[2] and before he finished the *Commonplace Book* and months before the *Principles* went to the press, his monism had given place to dualism, and the way of *mode* was replaced by the way of *idea*.

Let me summarise the conclusions of this article. Berkeley's key phrase has three shades of meaning, negative, psychological, and metaphysical. His *in the mind* may mean, (1) not in matter, (2) perceived by the human mind, or (3) perceived by the divine mind only. No hard and fast line can be drawn between these meanings; the reader must go by the context. In many passages the assertion of existence in the mind is, primarily, a denial of the existence of matter, and the distinction between mind human

[1] See my *Development within Berkeley's Commonplace Book*, MIND, Vol. XLIX, N.S., No. 193.

[2] See especially No. 24, 'Nothing properly but persons, *i.e.*, conscious things do exist, all other things are not so much existences as manners of ye existence of persons'. With which contrast No. 434, 'Impossible anything Besides that which thinks and is thought on should exist', also No. 820.

and mind divine does not arise; but in some passages the distinction becomes of cardinal importance. A sensible object, actually being perceived by you or me, is actually in the mind of man; but a sensible object, strictly so called, *i.e.*, one not being actually perceived by you, me, or other finite mind, exists, Berkeley teaches, in the mind of God, and in the mind of God alone.

These three shades of meaning correspond to Berkeley's three philosophical interests. He needed a flexible term for his varied tasks. First he was the controversialist, denying matter, 'the founder of a sect called the Immaterialists',[1] and he said *in the mind* meaning *not in matter*, as poets say *in heaven* meaning *not on earth*. Secondly, he was the psychologist, author of a new theory of vision; he believed in immediacy and direct awareness; he believed that what he saw, he saw, and not another thing or pale copy; and he expressed that belief by saying that the thing sensed was in his mind and not elsewhere. Thirdly, he was the metaphysician seeking ultimate answers to ultimate questions. He wanted to fathom the distinction between the perceived and the perceivable, between man's grasp and man's reach; he wanted to know the cause of change and the principles of human knowledge. He found the final solution of his problems in 'the vision of all things in God', and therefore existence in the mind, in Berkeley's last analysis, is existence in Him 'in whom we live and move and have our being'.[2]

[1] Swift to Lord Carteret, 3rd Sept., 1724.
[2] It is so stated in *Hyl.*, p. 453.

IV.—DISCUSSION.

GROUP STRUCTURE IN PHYSICAL SCIENCE.

In his review of my book, *The Philosophy of Physical Science* (MIND, October, 1940), Mr. Braithwaite has given a careful and illuminating summary of my main contentions. In general, I agree not only with the statements, but with the emphasis and perspective in the three pages (pp. 456-458) devoted to this survey. It may therefore be a favourable opportunity to carry the discussion farther by replying to the more critical part of the review, especially the detailed criticism of my epistemological derivation of the hypercomplex algebra of physics.

Braithwaite had a meagre target for his criticism, namely, three pages in *P.P.S.* (expository rather than argumentative) and "scattered sentences in the last chapter of *P.E.*"[1] The latter treatment, being mathematical, bears the brunt of the attack; but in *P.E.* I was concerned to protect my tender plants against the east wind of physicists' scepticism rather than against the heavy artillery of mathematical logic. I hope to show that the attack fails—whether through bad shooting or through poor visibility of the target. But I hope more especially, in the course of the discussion, to make more of the target visible.

I begin with the second of the two main criticisms, "Eddington by his use of the deceptive word 'changing' conceals an essential feature of the theory of groups—namely, the set of elements of a group (call them operations if you like) do not form a group in themselves, but form a group *with respect to* a given mode of combination. . . . A group, in the mathematical sense, is undefined except when the combining relation is given" (p. 462). It would be rather gratifying if it were true that this is an *essential* feature of group theory as hitherto understood; for it would mean that I had myself supplied the fundamental idea which makes the purely mathematical theory applicable to physical knowledge. (I am sure, however, that I have no such claim.) According to my statement, "Properly to realise the conception of group-structure, we must think of the pattern of interweaving as abstracted altogether from the particular entities and relations that furnish the pattern" (*P.P.S.*, p. 141). In this abstraction the group is specified solely by the pattern; and it is essential that the combining relation C should *not* be 'given', since

[1] *P.P.S., The Philosophy of Physical Science* (Cambridge, 1939); *P.E., Relativity Theory of Protons and Electrons* (Cambridge, 1936).

the group would then cease to be abstract. This is the feature which makes the group concept useful in the philosophy of physics; for our structural knowledge of the external world gives no hint of the nature of C. What is more, it does not recognise the distinction (implied by Braithwaite) between the nature of an element and the nature of the combining relation which makes it an element of a group. *The element is what it is because of its relation to the group structure.* For this reason I have thought it clearest to describe the elements of an abstract group as 'operators'; for I regard it as part of the nature of an operator that it should operate the way it does. Braithwaite admits the name 'operators', but spoils the concession by insisting that the operators are impotent until they have been directed (by the relation C) how they are to operate.

For example, I consider (*P.P.S.*, p. 143) a group whose elements are 'twice', 'thrice', 'two and a half times', etc. Braithwaite would take the elements to be 'two', 'three', 'two and a half', etc.; of these it would be true to say that they do not form the group until a combining relation, namely multiplication, is given. But 'two', 'three', etc., are not operators or operations. Elements which are genuine operators imply their own combining relation. In the development of mathematical theory the separation of a 'combining relation' from the rump of the operator is justifiable, like many other arbitrary devices; but it is equally justifiable to employ the undivided operator in the theory of structural knowledge.

I think the experts would dismiss the whole matter by saying that Eddington is talking about an abstract group and Braithwaite about realisations of a group. Be that as it may, I must insist that I am rescuing out of the mathematical formalism what is for physical purposes the most essential feature of the group conception of structure, namely, that primarily the elements of a group (or ring or algebra) are defined solely by their rôle in that group (or ring or algebra). Therefore when Braithwaite argues that it is possible to regard the elements of a group in such a way that they are not elements of a group, I answer that there is *no* other way of regarding them. Unless we import qualities not inherent in them by definition (by adopting a special realisation or representation [1] of the group) there is nothing to lay hold of that *could* be regarded from another point of view.

The most important group in fundamental physics is "the group of rotations in six dimensions", so-called from one of its possible representations. In the representation (though not in the group itself) the combining relation C can, if desired, be stated explicitly [2]; it consists in performing the rotations successively. Braithwaite

[1] I use representation throughout in its ordinary sense—not as a restricted technical term of group theory.

[2] There is no need to state it; for a rotation, being clearly an operation, implies its own combining relation. It is redundant to say that a rotation, applied to another rotation, rotates it.

observes that " if the mode of combination were instead taken to be, *e.g.*, that of expressing the rotations by symbols on the same blackboard . . . rotations would not form a group with respect to that mode of combination " (p. 462). This is not very illuminating. What does Braithwaite intend to symbolise by the ceremony of writing two symbols—not too close together—on the blackboard ? For the act of laying on chalk is neither a rotation nor a mode of combination of rotations. He offers no interpretation of the mystery ; but I will endeavour to supply one. When one rotation symbol is written down, it is intended to be symbolic of something—a rotation—in the physical world ; or when two symbols are written in juxtaposition it is intended to be symbolic of something—a rotation applied to a rotation—in the physical world. But the writing down of two symbols *unconnectedly* is not intended to be symbolic of anything in the physical world ; it is a memorandum of the content of the writer's mind. He has formed a mental concept of a rotation, and at the moment two such concepts exist in his mind, *e.g.*, as alternatives. The new mode of combination is not applied to the original group-elements, but to elements of mental conception which have replaced them.

We do in fact make a physical application of this method of combination as ' conceptual alternatives ' when we introduce probability into physics. The results of this extension naturally form a later stage in the development of the theory of physical structure.

Since Braithwaite evidently believes that the whole philosophy of structuralism breaks down over the question of a combining relation (p. 463, *footnote*), I will summarise my answer formally. Let $a, b, c, \ldots$ be elements of an abstract group whose structure is specified mathematically by equations such as $c = ab$. Braithwaite, following the pure mathematicians, replaces the symbols $a, b, c, \ldots$ by $\alpha\cdot, \beta\cdot, \gamma\cdot, \ldots$; so that the equation becomes $\gamma\cdot = \alpha\cdot\beta\cdot$, which, having regard to the associative law (admitted by both of us), is mathematically replaceable by $\gamma = \alpha\cdot\beta$. He thus gets into his equations an extra symbol—a dot—which he calls a ' combining relation ', and points out that by introducing an alternative symbol he can construct a combination $\alpha : \beta$ which is not equal to γ ; so that the group structure does not apply to α, β, γ intrinsically. Braithwaite's conclusion is—

The elements α, β, γ do not form a group apart from their combining relation ; therefore we can have no structural knowledge of things like α, β, γ—so that's the end of structuralism.

My conclusion is—

The elements α, β, γ do not form a group apart from their combining relation ; therefore our structural knowledge is about things like $\alpha\cdot, \beta\cdot, \gamma\cdot$—so that's the beginning of structuralism.

When $\alpha\cdot$ is used to denote an element of our knowledge of the external world the dot is as undetachable as is the dot of the letter *i*. One of the objects of employing the symbolic language of mathe-

matics is to escape linguistic fallacies; but seemingly even mathematical symbolism can convey a *suggestio falsi* and delude the user into detaching a meaningless α from its mode of combination, in much the same way that ordinary language deludes the realist philosopher into detaching a meaningless sensum from its mode of combination in sensation (*P.P.S.*, p. 212).

It follows that when empirical knowledge is formulated as a description of a 'physical universe' assumed (in accordance with a supposed 'necessity of thought') to be constituted of things like α, β, γ, the formulated description is not purely empirical. It is the task of epistemological theory to ascertain the extent to which non-empirical additions occur in physical knowledge as currently formulated, and in particular to discover which assertions are *purely* non-empirical. There is no harm in retaining the current formulation, if it is realised that it describes, not the external world, but a particular conception of the external world—not the abstract group-structure which is all we can know of the external world, but a particular conceptual representation of the group-structure. We have non-structural knowledge of our own conceptions (and, if sympathetic knowledge is admitted, of other people's conceptions), so that the α and the dot can be (and are) separate elements in the particular conception. We take the conceptual background, which determines the current mode of expression of physical knowledge, as it stands—as a 'necessity of thought' if you like (*P.P.S.*, p. 118). That does not mean that we defend it, but that an understanding of it is necessary in construing the assertions of physics. In the same way a historical record must be construed according to the ideas of the period, however wrong-headed those ideas may have been. It would be odd to hold a historian responsible for the ideas of the period he is studying; but I do not know what else to make of Braithwaite's remark, "If Eddington were serious in presupposing existence of the individual elementary particles at the beginning of his chain of proof, it would be circular to attempt to deduce (as he does) the number of elementary particles in the universe" (p. 464). As a philosopher, *I* do not presuppose the existence of individual particles; I point out the consequences in physics which have resulted from this presupposition. And I contend that the determinations of the number of particles *are* circular; that is to say they are a roundabout way of arriving at a number which has been introduced into physics by its presuppositions.

Thus, in construing philosophically the assertions of physics, we have to allow for the fact that its language refers to a particular representation of the structure, and is more particularised than our empirical knowledge of the external world warrants.

These considerations are illustrated in my representation of the most primitive relation P (which is the germ of the relation of displacement in space and time) by a double existence symbol—a procedure criticised by Braithwaite (pp. 463, 464). In *P.P.S.* the

double existence symbol is denoted by $J_1 \times J_2$. All that is asserted by this notation—all that issues from it in theoretical physics—is that $J_1 \times J_2$ is an element of a group or algebra [1] which is the direct square of the group or algebra of which the simple existence symbols J are elements. The conclusion that P is identifiable with an element of this particular algebra was first reached *a posteriori* by the usual methods of physics; my thesis is that it can be reached *a priori* by examining the frame of thought in which the concept of a 'relation' arises. What is the minimum condition that a relation must satisfy in order that it may not conflict with our conception of what the term 'relation' ought to mean? And what further conditions must be satisfied before we can admit that it is 'primitive', *i.e.* incapable of analysis into a combination of simpler relations? By this scrutiny of our conceptions, we arrive at the general definition of a primitive relation, namely, that "it must be capable of being conceived as something whose existence is contingent on the existence of two somethings (called relata), either of which could exist or not". It is understood that the two relata are simple, *i.e.* they are not analysable into parts which could exist or not independently. We assert no more about P than that it may be anything whose properties are not inconsistent with its being conceived in this way. By identifying P with an element of $J_1 \times J_2$ algebra we precisely satisfy the definition, since there is a possible representation of this algebra by dyads consisting of two elements whose sole properties are contained in the structural concept of existence. It is important to realise that P is not identified with a dyad. The dyadic representation of the algebra of which P is an element is only introduced as a *test* that our mathematical formulation of P is a literal translation into mathematical language of the conception of a primitive relation. There are infinitely many representations of the same algebra. Among them is a representation by the rotations in six dimensions which gives a convenient conceptual picture. But it would be alien to the principles of structuralism to regard this as 'truer' than any of the other representations of which the $J_1 \times J_2$ algebra is capable.

This answers Braithwaite's criticism (p. 464) that the double existence symbol says too much. So far from P being restricted to a 'relationship' of specific relata, it is not necessarily associated with any relata at all. The symbol only goes so far as to say that there will be *no contradiction* if that which P represents in the external world is conceived as having existential association with two relata—since one of the possible representations of the algebra agrees with that conception. Accordingly, the developments of theoretical physics which spring from this algebra will fit into the frame of thought which has given birth to the concept of relations between relata. Conversely, the laws of physics traceable to this algebraic foundation are inherent, not in the external world, but in

[1] The relation of the algebra to the group will be explained later.

the frame of thought in which our observational knowledge has been formulated.

The first main criticism—the alleged "straight mathematical mistake"—requires only a brief reference. Braithwaite's point is that there is no group, other than a quite trivial group, consisting entirely of existence operators J (or $J_1 \times J_2$). The bearing of this is that the two routes to a 'relation', (*a*) by considering it as an element of a group, and (*b*) by defining it in terms of the concept of existence, do not meet unless a further adjustment is made. This was not overlooked in *P.E.*, where it is stated (p. 325) that the $J_1 \times J_2$ are the pure operators of a group which includes other operators. There was a justification for not inflicting this on readers of *P.P.S.*, because it turns out to be a side track. At the next stage (*P.P.S.*, p. 165) we substitute independent-existence symbols $K = 2J - 1$. When the argument is repeated *mutatis mutandis* for independently existing relata, the point does not arise; because a set of K's (with their associated imaginaries iK) can, unlike the J's, form a non-commutative group, namely the quaternion group.

Braithwaite sums up his criticism in the words, "Eddington's attempted deduction from epistemological principles of the laws of physics thus fails, in my opinion, at the first stage—the proof that the E-algebra is the one and only algebra applicable to the world of physical observation" (p. 464). I will therefore try to explain, more fully than heretofore, the present position of the epistemological deduction of the E-algebra.

The E-algebra (another name for the $J_1 \times J_2$ algebra) is defined unambiguously as *the total matric algebra of order sixteen over the field of the complex numbers.* The problem then divides itself into the following questions:—

(*a*) Why *sixteen?*
(*b*) Why over the *complex numbers?*
(*c*) Why an algebra of *any finite order?*
(*d*) Why an *algebra* at all?

I will take these questions in order; but I would first remark that it is (*a*) that is crucial. If we can answer (*a*), there are no arbitrary numbers left in the scheme of physics—numbers that might be supposed to proceed from the external world, and not from the frame of thought in which we express our knowledge of it. The deduction of the E-algebra appears as the first step when the argument is set forth formally, but in the order in which the theory has unfolded itself it is the last step; and throughout the earlier stages progress has been measured by the successive elimination of the various arbitrary constants in the laws of nature. Question (*a*) must be answered in order to complete the task of showing that the number-scheme of physics originates wholly out of our forms of thought. If the number-scheme is entirely epistemological, no serious doubt remains that the qualitative characteristics of

theoretical physics are epistemological. The other questions have an interest of their own, and the answers are doubtless needed to clarify our ideas. But they will scarcely influence anyone's personal decision for or against an epistemological origin of fundamental physics.[1]

(*a*) This is the question we have been discussing. The E-symbols which are the bases of the E-algebra are double K-symbols $K_1 \times K_2$, K being an independent-existence symbol (*P.P.S.*, p. 165).

We can now indicate precisely the epistemological principles which furnish the answer to (*a*). Firstly, as explained in *P.P.S.*, physical knowledge (being communicable knowledge) is necessarily knowledge of abstract structure; and the elements of structure are assigned no properties other than those arising out of the group or algebra which defines the abstract structure.[2] Secondly, we introduce the 'form of thought' according to which the ultimate elements of physical structure are identified with relations (*P.P.S.*, pp. 122-125). Thirdly, the definition of a primitive relation is expressed in terms of the 'concept of existence', afterwards extended to the 'concept of independent existence'. Then the answer to (*a*) is that the total matric algebra of order 16 is the only algebra of finite order (linear associative algebra) whose elements can be conceived as relations (or more strictly as the conceptual alternatives which constitute the field of a probability distribution of relations),[3] without assigning to the relata any properties other than independent existence or non-existence.

The identification of the order of the algebra gives the basis from which in due course we derive all the numerical constants in fundamental physics. These constants are also derived *a posteriori* by analysis of the results of observation which have been formulated according to the recognised terminology of physical science; and the epistemologically derived values are found to agree with the *a posteriori* values over phenomena ranging from the forces inside an

[1] By 'decision' I mean, not academic acceptance, but the choice one is called upon to make when it is a question of spending several years' labour along one of two alternative openings. Formal deduction has its uses, but it involves a great deal of routine exploration which does not affect such decisions. Question (*a*) seriously affects the decision; for, although it is easy to see in a general way that our forms of thought leave an impress on the knowledge that is adapted to them, it had seemed well-nigh impossible that the impress could include a complicated set of numbers *entirely* without objective basis.

[2] It might seem that idempotency is an exception—a self-property of an element which does not depend on its association with other elements. This is incorrect; for, as Braithwaite would express it, the element is only idempotent with respect to the combining relation defined as the combining relation of the group. I should say rather that it is implicit in the concept of an operation that it has a field consisting of more than one operand.

[3] This is explained under (*d*) below.

atomic nucleus to the recession of the galaxies. Braithwaite asks "How can knowledge of laws which are not based on empirical facts be derived from observation of empirical facts?" (p. 458). Obviously it cannot. But from *alleged* empirical facts it is possible to derive a knowledge of the non-empirical laws which have been inadvertently introduced along with the true empirical facts in the process of systematising our knowledge of them.

It may be useful to examine a definite example. The experimenter determines a constant x which (the theorist tells him) is the mean distance between the two particles in a hydrogen atom; he also determines a constant y which (again on the authority of the theorist) is the mean range of the non-Coulombian force in a close encounter of two of the heavier kind of particle of a hydrogen atom. Epistemological theory predicts the exact value of x/y; and this agrees with the experimenter's value within the limits of accuracy of the experiment (about 1 per cent.). There is here one point which requires elucidation. The epistemological prediction refers to two kinds of 'elementary particle' defined in terms of the E-algebra; but the experimenter has verified it for the two particles of a hydrogen atom defined ultimately in terms of sensory experience. Naturally the epistemological theory does not predict the names under which its entities will appear in empirical knowledge. There must be a collating of nomenclature in passing from the abstract group or algebra to its realisation in sensory experience. We might be content to use the aforesaid agreement of x/y solely for the purpose of this collation—to establish once for all that the particles in current physics which realise the elementary particles of the abstract algebra are the proton and electron, not, *e.g.*, the neutron and mesotron. Then the actual verification is obtained by showing that other ratios (*e.g.*, the ratio of the electrical to the gravitational force between a proton and electron) agree with the epistemological predictions. There is so much wealth of verification that we can afford to sacrifice one ratio x/y for the purpose of collation. But the sacrifice is over generous, and it misses a highly significant feature of the epistemological theory. Epistemology does not predict the names that the practical physicist will bestow on the 'elementary particles' when he comes across them in his experience—if he ever does. But it does show that the engrained form of thought with which a physicist approaches his task is such that he cannot rest satisfied that he has got to the bottom of things unless and until he has found particles identifiable with the 'elementary particles'. There is an inevitability in the appearance of the algebraically elementary particles in physics, because they are on the direct route to the goal at which, consciously or unconsciously, the physicist must aim. It may be added that, if he cannot find them, he has sufficient ingenuity to make them (*P.P.S.*, Ch. VII)—or at least to produce phenomena which will, in his own opinion, give him a justification for asserting their presence.

(*b*) To understand why the field of the coefficients consists of numbers, we must recall the subject matter of physics. I have described it in *The Nature of the Physical World* (p. 255) as a 'connectivity of pointer-readings'. The pointer-readings employed in systematic investigation are of a specialised kind described as 'measures' of defined physical quantities. Whether we are dealing with systematic measures or casual pointer-readings, the subject-matter of physics consists of numbers which are not informative in themselves, but become informative in conjunction with a connectivity which is not describable by numbers. Accordingly, the answer to (*b*) is that the coefficients are numbers because of the nature of the subject matter to which the algebra is to be applied.

It is incumbent on us to show reason why, for example, an algebra of order 9 over the field of numbers is inadmissible; for such an algebra would have been a rival to our algebra of order 16, and it would be argued that the choice between them must be decided by some objective characteristic of the constitution of the universe. But it is not incumbent on us to show that the field of coefficients cannot be, let us say, the seven cardinal virtues and the seven deadly sins. If such a calculus yields significant results,[1] so much the better. It will not compete with our epistemological derivation of fundamental physics, but will constitute a parallel development in ethics.

It may be objected that, although the number-field must ultimately be introduced, it need not be introduced so directly. The coefficients might be elements of another algebra or mathematical system. But that is an extension which will in any case arise in the subsequent stages of the development of physical theory. Since it is contemplated that it will be part of the procedure of building up the highly complicated structure of the universe, there is no need to raise the question at the first stage.

The extension of the field of coefficients from real to complex numbers also belongs to a later stage in the development of the theory. Being later in the deductive treatment, it comes earlier in the analytical treatment and forms a comparatively elementary part of the subject.[2] It is sufficient to deduce the E-algebra in the first place with real coefficients; the transformation to complex coefficients will then occur, with full justification, at an appropriate point in the investigation of its application. In this connection we have to note that it is part of the technical method of physics to develop formulæ which cover 'imaginary' as well as real universes, and later pick out the real universe by applying 'reality conditions'. The E-algebra with real coefficients has a 16-fold infinity of elements;

[1] The supposition is, of course, absurd; but we do not need to assume its absurdity.

[2] *P.E.*, Ch. VI., Reality Conditions. I have since been able to make some improvements, and am satisfied that a fully rigorous derivation of the reality conditions can be given.

with complex coefficients it has a 32-fold infinity. But the reality conditions reduce the 32-fold infinity to a 16-fold infinity in actual application, so that the algebra is homogeneous with (though not identical with) the E-algebra with real coefficients.

(*c*) This is a question for the expert algebraist. My expectation is that the algebra of order 16 is the only algebra of any kind containing elements which satisfy the definition of primitive relations; but a thorough examination of the question would be welcome.

(*d*) This question in its general form also requires an expert algebraist; but there is a more limited question which demands an immediate answer. Why have we to introduce an *algebra*, instead of merely a *group*, of double existence symbols? The answer has been hinted at already. The abstract group-structure whose ultimate elements are conceived as primitive relations is connected with physical knowledge via the concept of probability. I have been at pains to show that the concept of probability (or, more generally, the irreversibility which it introduces) is not brought into physics gratuitously, but is necessarily involved in the definition of physical quantities (*P.P.S.*, p. 96). Therefore the elements of the mathematical structure of physics are to be conceived, not as primitive relations, but as *probabilities*[1] *of primitive relations*. This implies that they must admit, not only of operational combination as elements of a group homomorphic with that of the primitive relations themselves, but also of a distinct form of combination, namely, as 'conceptual alternatives'. The combination as conceptual alternatives yields the familiar conception of a probability distribution.

Thus when account is taken of probability as an essential feature of physical knowledge, the structure must be described by a mathematical system which contains a double plan of combination of elements. It is in order to satisfy this condition that the group is changed to an algebra.

In his remarks on the law of chance (p. 465) Braithwaite suggests that there is an inconsistency between the epistemological view on *P.P.S.*, page 98, and the statement in other places (pp. 61, 181, 218, 221) that the law of chance or 'principle of non-correlation' is not an epistemological law. Apparently he has not noticed that page 98 contains no reference to any law. In recognising that the intrusion of probability into physics has an epistemological basis, I am following the view currently accepted; the scientific leaders have for once forgotten their antipathy to epistemology, and revel in Heisenberg's epistemological explanation of his Uncertainty Principle. But it does not follow that a particular assumption of non-correlation (law of chance), which in practice is made in the treatment of probabilities in physics, has any epistemological basis.

[1] The terminology of physics does not in general distinguish between a quantity and that of which it is a quantity. In the above phrase 'probability' has the second meaning.

There is therefore no inconsistency in my conclusion that this assumption is not an epistemological law and is in fact invalid for phenomena controlled by conscious volition.

Notwithstanding his very lucid exposition of my theory, there is a comment which makes me doubt whether Braithwaite has grasped the main idea of structuralism. He regards as conclusive an article by M. H. A. Newman in 1928 criticising Russell's theory of structure, "but his strictures are applicable to Eddington's group-structure" (p. 463). Russell, in his pioneer development of structuralism, did not get so far as the concept of group-structure. He had glimpsed the idea of a purely abstract structure; but, since he did not concern himself with the technical problem of describing it, he had no defence against Newman's criticisms. Russell's vague conception of structure was a pattern of entities, or at most a pattern of relations; but the elements of group theory make it clear that pure structure is only reached by considering a pattern of interweaving, *i.e.* a pattern of interrelatedness of relations (*P.P.S.*, pp. 137-140). The conditions for a pure structure can be described as follows:—

We have to postulate a set of operators which can operate on each other, the result being another member of the set. Whether the operators can operate on anything else is unimportant.[1] There are known examples of such operators; thus we can rotate a rotation, multiply a multiplier, etc. Rotation is the favourite example, because it provides patterns which are clearly non-trivial. Let $A_r (r = 1, 2, \ldots n)$ be such a set of operators. Then we can assign to them a pattern of interrelatedness by drawing up a "multiplication table", $A_1A_2 = A_7$, $A_1A_3 = A_9$, etc. This should be read, "the result of A_1-ing A_2 is A_7, etc.". The table must be consistent with the associative law $A_r(A_sA_t) = (A_rA_s)A_t$. It is possible to design a table which yields a symmetrical pattern, so that the relation of any operator (other than the positive or negative unit operator) to the pattern is similar to that of any other. We shall consider such a symmetrical group, which has a special importance in connection with the structural concept of a vector. It is understood that we have no information about the operators other than their multiplication table; but this is by no means trivial information. We have no idea what kind of an operation A_1 is. But if we consider a set of n operations (operable on one another) with which we are familiar, we can construct their multiplication table; and, according as the tables do or do not agree, we can decide that the A_r *might* be these operations or are definitely *not* these operations.[2] Newman

[1] For example, it may be argued that rotation applied to a rotation is not the same operation as rotation applied to the earth. Although not accepting this view, I avoid the question by considering exclusively rotations which rotate rotations—the latter rotations being therefore themselves operations that can be performed on rotations.

[2] The fact that permanent scientific progress depends chiefly on negative information—the narrowing down of possibilities by crucial experiments—is commented on in *New Pathways in Science*, p. 120.

rightly pointed out that the earlier descriptions of structure provided only trivial information, unless they were supplemented by knowledge which was not structural; but I can see no foundation for Braithwaite's contention that this objection applies to structure described by a group-multiplication table.

The way in which this information is applied may be illustrated by an example. Some years ago the important discovery was made that *electrons spin*. As a statement of what is happening in the external world this amounts to saying that something of inapprehensible nature is doing something incomprehensible; and it would seem to be about as informative as the assertion in 'Jabberwocky' that *toves gyre*. But although we cannot pretend to describe the nature of electron-spin as an activity or a condition in the external world, we may say this much about it: spins can be differentiated from one another by specifying their components in a set of mutually orthogonal planes. This is not trivial knowledge; for example, it would not be true of stress-systems. But it is still open to the Newman-Braithwaite objection that it presupposes that we are acquainted (presumably by intuition) with orthogonal planes in the external world. We surmount this difficulty by considering rotations (through a right angle) in each of the planes. These are operations operable on one another, and possess a structure defined by a group multiplication table. We need then trouble no further about the planes; for the spin-components, said to be associated with the planes, could equally well have been said to be associated with the unit rotations in the planes—better, in fact, because the rotations define the signs of the components, whereas the planes do not. We can therefore restate the discovery as follows: "among the characteristics of the electron is something specified by numbers associated with a set of operators whose multiplication table is . . . (here state the table)". We notice that the set of operators defined by the multiplication table may be unit rotations in orthogonal planes, or they may be some other kind of operation with the same group-structure. The older statement had therefore an appearance of greater definiteness—spurious because the knowledge presupposed by it is non-existent. By adopting the new form we are able to give a precise statement of what was discovered without saying too much; and this form contains all that is actually employed in developing the mathematical theory which traces the consequences of electron-spin. I may repeat that this structural description of the spin property of the electron is not trivial. Though reticent, it conveys information which enables us to contradict many statements which otherwise could be plausibly made or suggested—a type of information which my critics, at any rate, will not despise.

ARTHUR S. EDDINGTON.

V.—CRITICAL NOTICES.

The Foundations of Empirical Knowledge. By ALFRED J. AYER, M.A. London: Macmillan & Co., 1940. Pp. x + 276. 10s. 6d.

MR. AYER is to be warmly congratulated on this book, the proofs of which—so it is said—he corrected in a barrack-room. The first question the reviewer will be asked is, how does it compare with *Language, Truth and Logic?* There are several striking differences between them. This is a much more technical book, and probably will not have so wide and varied a public; but professional philosophers will probably prefer it. The traditionally-minded reader will be cheered to find far more references to the history of Philosophy, though he may be shocked by an excursus into Anthropology in the chapter on Causality. Both for good and for ill, this book is written with less passion—I do not use the word in any uncomplimentary sense—though the style is as clear and as vigorous as ever. Mr. Ayer's controversial manner has grown much milder. It is true that for the present he is still severe with the metaphysicians. But to his other opponents he no longer says 'Nonsense, nonsense!' but rather, with Mr. Wisdom, 'Put it your way if you like, but be careful'. Indeed, some objects of his criticism, the present reviewer among them, are treated more kindly still. They are gently reproved, not so much for their errors, as for misunderstanding the true things they themselves have said.

Mr. Ayer says in the Preface, 'My main purpose has been to resolve the philosophical problems which are commonly brought under the heading of "our knowledge of the external world". But I have also found occasion to deal with such further questions as those of our knowledge of other minds, of the character of causal laws, of the analysis of meaning, and of the nature of propositions and their relation to facts.' This admirably describes the scope of the book. It will be best to consider the first two chapters and the last chapter together, since they are concerned with the central topic, our knowledge of the external world. The two intervening chapters, ch. 3, 'The Egocentric Predicament', and ch. 4, 'Causality and Perception', are in the nature of an interlude; and, though they are well worthy of detailed discussion, space will not permit me to say more than a few words about them.

The main object of ch. 1, 'The Argument from Illusion', is to examine the considerations which have led many philosophers to adopt what is called the Sense-datum Theory of Perception. The Argument from Illusion has been supposed to establish a *factual*

conclusion, *viz.* that what we are directly aware of in perception is never a material object, but only a sense-datum. Accordingly Sense-datum Philosophers have congratulated themselves on discovering a new and queer kind of entity, or rather a whole world of queer entities, whose strange properties they have enthusiastically described: much as Captain Cook and his successors may have congratulated themselves on discovering a continent peopled with marsupials, black swans, and duck-billed platypuses. But in exchange, they are obliged to confess that the world we thought we knew—the world of material objects and physical events—is not really known at all, only believed in; and they have asked themselves in some perplexity what the grounds of this belief could be. Mr. Ayer proceeds to 'debunk' both the self-congratulations and the laments. He says that the Sense-datum Philosophers have not discovered any new entities at all, nor any new facts; neither have they robbed us of any old ones. What they are really doing, if only they could see it, is just to recommend a new terminology. Instead of talking about the Sense-datum Theory, we ought to talk about the Sense-datum *Language*. In Mr. Ayer's view, it is a very useful language, at least for the purposes of philosophical discussion (there is no need to thrust it upon plain men or scientists, or even moralists). Indeed, he adopts it himself. But we must realise clearly that it is only one language among several, and it is no more 'right' than the others. Everything that a philosopher or anyone else may want to say about perception and the perceptible world could equally be said in other ways, though more clumsily and with a greater risk of ambiguity. There is, for example, the language of Appearing. Instead of saying 'I sensed a grey elliptical sense-datum' you can say 'I saw a material object which looked grey and elliptical' (though really perhaps it was blue and circular). Or if this does not do, you can have recourse to the language of Existential Appearing, and say 'there appeared *to be* two candles though there was only one' or 'there appeared to be a pink rat on the hearthrug though there was really no rat at all'. Even the language of Naive Realism is not excluded. For it is not even true, according to Mr. Ayer, that the Naive Realist theory of perception is refuted by the Argument from Illusion, though this is perhaps the one point upon which all epistemologists hitherto have agreed. It is not refuted, because it never was a theory at all, but only a terminology. And in spite of illusions and hallucinations, this terminology *can* still be used, provided that certain compensatory adjustments are made. Consider illusions of Perspective, for example. We could always say, if we liked, that houses and telegraph-poles change their sizes and shapes when we move, and then change back when we move back again. True, this would not be sufficient. We must add that some material objects are more evanescent, as well as more changeable, than material objects are generally thought to be. The pool of water I see in the desert is only there for a short time. It

vanishes as I approach, and perhaps I am the only person who sees it. Still, provided that I admit that it is very short-lived, I can maintain if I like that it is a full-blooded object, with back, insides, etc., and no mere backless colour-expanse ; and nobody can refute me. The pink rat, too, is a perfectly good material object. It is a very short-lived material object indeed, and so perhaps unworthy of the name of rat ; but still, there it is. And if I alone can see it, that is because my visual apparatus is for the time being more delicate than yours. Thus the Argument from Illusion, if you can call it an argument, yields no exciting consequences at all, as Mr. Ayer proceeds to show by a detailed examination of the conclusions which Descartes, Locke and Bradley professed to draw from it. All that it does is to provide us with a motive for adopting a new technical terminology, the terminology of sense-data. Even so, the motive is not a compelling one. Some philosophers don't like the sense-datum terminology. Very well, then, let them use another ; they will find themselves involved in clumsy circumlocutions, and they will find that the ambiguity of words like ' see ', ' hear ', etc., is a nuisance, but that is all.

Now we may grant, I think, that everything we want to say can be said in the Appearing language, at least if we are careful to stick to the ' existential ' form of it, whose formula is ' *there appears to be* a material object M having a quality ϕ '. (The other and more familiar form of it, in which we say merely, ' M appears ϕ ', cannot be applied to hallucination, or even to double vision.) Indeed, if we remember that the Appearing language can always be used, we shall be able to get rid of a puzzle which has sometimes worried the Sense-datum Philosophers. The puzzle is this : if sense-data are all that we are directly aware of in perception, how have we ever acquired the concept of ' material-objectness ' at all ? Must it not be an innate idea ? But if we change over to the Appearing language, the puzzle vanishes. For now we can say that the minimum datum is to be described by the expression ' there appears to be a material object with such and such characteristics ', and the concept of material-objectness is present to our minds from the start. It is true that the concept will have to be abstracted from apparent-but-not-necessarily-real instances. But perhaps we shall be willing to swallow this ; it is less of a mouthful than an innate idea.

But though we may grant Mr. Ayer his point so far as the Appearing language goes (at least in its ' existential ' form), what he says about the language of Naive Realism is another matter. Let us go to somebody who is addicted to that mode of speech, some plain, bluff man. ' Don't worry about what the philosophers say ', we tell him, ' go on talking exactly as before. Only remember to admit that chairs and tables change their shapes as you walk about, and then change back again. Remember also that there are some extremely short-lived objects in the world, and some which can only be perceived by one person.' What will his reaction be ? Surely

he will say, ' A material object which is so changeable as this, or so short-lived, or perceptible only to one person, is not a material object at all, in *my* sense of that phrase '. Mr. Ayer's consolations will have a hollow sound. He professes to be suggesting a modification of the Naive Realist terminology, but he is really saying that it must be abandoned. But, if so, the Sense-datum Philosophers have discovered something after all. They have discovered that the *ordinary* Naive Realist terminology will not fit the facts, even though an *extra*ordinary terminology, which has some conventions in common with it, can be invented to fit them. Of course, this is not a new discovery, only revealed to the world in the year 1912, when Lord Russell first used the word ' sense-datum '. But neither is the Sense-datum Philosophy a new one. It is as old as the seventeenth century ; indeed, we may say it is as old as Plato himself, for something very like it occurs both in the *Republic* and the *Theaetatus*. Philosophers have been talking about ' phantasmata ', ' ideas of sense ', ' sense-impressions ', ' presentations ' for ages. It is only the *phrase* ' sense-datum ' which is new ; the linguistic conventions (and these are what matter) were essentially the same.

Perhaps it will be objected that even so the discovery which I have attributed to the Sense-datum Philosophers does not deserve to be called a discovery. For all it amounts to is pointing out that illusions and hallucinations do sometimes occur ; and surely everyone has always known that ? To this I answer, certainly it has always been known, in the sense that it has been a familiar fact of daily life. But philosophers in their theories, or if you like in their professional utterances, have a way of forgetting facts which are at other times perfectly familiar to them and to everyone else ; and they do this even when the facts are highly relevant to what they are saying. Mr. Ayer says somewhere that he cannot believe that any philosopher ever intended to deny the existence of illusion or hallucination. But it is not a case of intending or denying. It is a case of failing to consider what at other times one is perfectly familiar with ; and this failure may be systematic, in that it prevails throughout one's philosophical hours. In this sense, it seems pretty clear that some philosophers, and even some epistemologists, have spoken and written *as if* they denied the existence of illusion and hallucination ; and some perhaps still do. If so, the Sense-datum Philosopher does well to point out to them that they have failed to reckon with a highly relevant fact ; and this fact is ' new ' to them in the sense that in their philosophical hours it has hitherto failed to obtrude itself on their minds, though in their out-of-work hours it is not ' new ' to them at all. The Sense-datum Philosophy also does well to point out to them that there is no qualitative difference between illusory and hallucinatory experiences on the one hand, and normal or veridical ones on the other (as it is logically possible that there might have been) ; and this fact is ' new ' to them in the same sense, though likewise perfectly familiar in daily life.

But, it will be said, the Sense-datum Philosophers claim to have discovered a new set of *entities*, and this at least they have not done. I agree that some of them may have made this claim in moments of exaltation. But in a cool hour, I believe they would claim something much less specific. They would claim to have discovered (shall I say ?) a 'feature of our experience', or of the experiencable universe, which can only be accommodated by making *some* departure from our customary modes of speech: either by adopting a terminology of special entities (sense-data, phantasmata or what not) or else by adopting a terminology of appearing, or of multiple location, or some other. And that claim seems to be justified. Moreover, when they claimed to have discovered a 'new world', the sensible world, a sort of philosophical Australia peopled by strange beasts, and proceeded to describe its fauna and geography, sometimes with tedious and indecent gusto, they were not wholly in error. For the way things look is in many respects very different from what they physically are, and if anyone says it is a topic which is worthy of investigation on its own account, and proceeds to investigate it, he is right; and any undue enthusiasm he may display deserves pardon rather than censure. If philosophers have not previously been much interested in the way things look, or not enough, that subject is so far a new field of investigation, in which strange facts are to be encountered (strange to philosophers, that is) though it is extravagant to call it a new world of strange entities.

To return to Mr. Ayer's argument: the Sense-datum language, he points out, is a technical language, invented by philosophers for purposes of epistemological discussion. The rules of this language may therefore be laid down as we please, since we have no already existing usage to take account of. Accordingly, in ch. 2, 'The Characterisation of Sense-data', he proceeds to say what he thinks these rules should be. But first he points out that here again philosophers have misconceived the situation, as recent controversies show. Can a sense-datum appear to have characteristics which it does not really have? Can it have unnoticed or undiscriminated characteristics? Can it exist unsensed? *I.e.* should we say, as Lord Russell formerly did, that there are unsensed sensibilia? To each of these questions some philosophers have answered Yes and others No. But in each case both sides were wrong. For both sides imagined that they were quarrelling about a question of fact. They agreed, for instance, that either it was true that sense-data can appear to have characteristics which they do not have, or else it was false; whereas really it was not a question of truth or falsity at all, but simply of terminological convention. Once we put the problem on this footing it can be, not exactly solved—for it is not a question of solving—but at any rate settled. Granting that we are to use the Sense-datum terminology, is it convenient to say that sense-data can appear to have characteristics which they do not really have? Obviously it is inconvenient. For if we allowed

ourselves to say this, we should defeat the very purpose for which the Sense-datum terminology was invented. Instead of saying ' this material object appears elliptical but is in fact circular ' we decided to say ' this sense-datum which I sense actually *is* elliptical '. And this enabled us to tackle the question, ' what justifies us in believing that there is a material object in such and such a place, and that it is in fact circular ? ' But if we now reintroduce the distinction between ' apparent ' and ' real ' within the Sense-datum language itself, we defeat our own purpose, which was precisely to avoid that distinction. In addition, we find ourselves talking about sense-data as if they were themselves a new sort of material objects, somehow intervening between our minds and the old ones, which leads us into pseudo-problems.

So far everyone will agree with Mr. Ayer's decision. But another convention which he recommends is not so easily acceptable. We are not to say that a sense-datum can appear to be what it is not. But may we say that it can fail to appear what it is ? According to Mr. Ayer, we had better not. He suggests that it be a convention that sense-data cannot have unnoticed or undiscriminated characteristics. The difficulty which he here has in mind, and wishes to evade, turns up in several different forms. I am hit on the head and see stars, but I cannot tell you how many stars I saw. I have a glimpse of a tiger ; I sense a yellowish expanse with a lot of dark stripes, but again I cannot tell you how many stripes my sense-datum contained. Or again, I am presented with three pieces of coloured wool. I sense three colour-expanses, A, B and C. I see no difference between A and B, nor between B and C ; but I do see a difference between A and C. Such experiences tempt us to say that sense-data and sense-fields can have undiscriminated constituents or characteristics. We are inclined to hold that there must, in fact, have been some definite number of bright spots or dark stripes in our sense-field, though we did not enumerate them ; and that there must really have been a colour-difference between A and B, and likewise between B and C, though we failed to discover it.

Now Mr. Ayer tells us that it is inexpedient to say this. For if we do, we are again applying to sense-data language which is only appropriate to material objects. The tiger does have a definite number of physically-dark stripes on the left-hand side of its body ; physically, the first piece of wool does differ in colour from the second, and the second from the third. But we were talking about sense-data, not about the tiger or the wool. And we ought to say that the sense-datum of the tiger has *no* determinate number of stripes. It just has ' many ' stripes ; where ' many ', I suppose, is the name of a recognisable *Gestalt*-quality which characterises the stripy sense-datum as a whole, but is not correlatable with the number-series. Likewise when I saw stars, I just saw many stars, not any determinate number of stars. Perhaps I could tell you

whether I saw ' ever so many ' or only ' rather a lot ', but when you ask me *how* many, the question has no meaning ; though, of course, it would have one if you were asking me about physical stars. In the case of the wools we must say that sense-datum A really was just like sense-datum B in colour, and sense-datum B really was just like sense-datum C, even though A was undoubtedly different in colour from C. Of course the relation of exact likeness is transitive for material objects, but that is no reason why it should be transitive for sense-data. If someone objects that it is logically necessary for this relation to be transitive, no matter what its terms are, there are two replies. First, you can find some other name for the sense-given relation we are speaking of, if you do not approve of calling it ' exact likeness '. Secondly, suppose there are two sense-data, S_1 and S_2, and suppose we say that S_1 is exactly like S_2. When we translate this statement into the material-object language, what we get is not ' M_1 *is* exactly like M_2 ' but rather ' M_1 *looks* exactly like M_2 '. And nobody maintains that the relation of ' *looking* exactly alike ' is transitive. Mr. Ayer might have used the same argument in the case of enumerability, though actually he does not. He could say that the tiger does look many-striped, but does not look to have twenty stripes rather than nineteen ; and that when one is hit on the head there appear to be many stars, but there do not appear to be just sixty-one, or fifty, or thirty-nine.

This is an attractive way of solving, or dissolving, an obstinate problem. It is specially plausible with regard to ' seeing stars ', for here there are no enumerable material objects to cause confusion. Or if it be said that there are—namely a definite number of bits of the retina which are subjected to physical pressure—we can easily take a case of complete hallucination instead. Consider, for example, a hallucinatory vision of a speckled hen. Just how many speckles are there in the visionary sense-datum ? Is there any definite number of speckles ? It is plausible to suggest that the notion of number does not apply at all. If so, it will not be sense to say that these visionary speckles are enumerable though not enumerated ; and if we cannot say this about a hallucinatory sense-datum or sense-field, neither can we say it about a normal one, though in the latter case there is a set of material objects to which the sense-data belong, and these of course *are* enumerable.

Nevertheless, Mr. Ayer's solution, or terminological recommendation, is not without difficulties of its own. Shall we not be committed to saying that a sense-datum can have a determinable characteristic, without having *any* of the determinate characteristics which fall under that determinable ? If one sense-datum can be many-striped without having any definite number of stripes in it, another might be blue without having any definite shade of blue, or even coloured without any specific colour. Likewise it might have a roundish shape, but not any definite *sort* of roundish shape, or even just shape in general with no specific shape at all. Moreover, suppose

I do start to count the stripes in my sense-datum of the tiger. A very singular process must then occur, which is certainly not change, nor even exactly creation. At first there is no determinate number of stripes at all—merely ' many '. Then there are more than one, but no determinate number more ; then more than two, more than three, etc., but no definite number more ; until at last when I have finished (but not before) there are exactly twenty-three. What is this process, by which an entity passes from having ' many ' parts but no definite number of parts, to having exactly twenty-three ? It is not a change, nor yet an addition of fresh parts. It seems to be an advance from the objectively vague to the objectively definite : I say ' objectively ' because the process takes place *in rerum natura* (or at least *in datorum natura*) and not merely in the percipient's thoughts or statements. The sense-datum itself alters, if you can call it alteration, though it is the percipient's act of enumeration which causes the alteration. Mr. Ayer may say that the question whether this process is a change or something else does not arise ; for when I count the stripes, what I am aware of is a series of sense-data, not just an individual one. Be it so ; all the same, it is an exceedingly queer sort of series, in which the members differ from each other, and resemble each other, in a very peculiar way. What orders them in a series is the degree to which numerical definiteness has spread itself over each of them. In S_1 only one little corner has a definite number of stripes in it ; in S_2 the definitely-numerous portion is a little bigger, and so on, until in the last member, the whole area has a definite number of stripes.

As with number, so too with qualities and relations. My sense-datum at first is just brightly coloured. *What* colour has it got ? No definite colour at all, since I have not yet attended to that particular part of my visual field. But now I do attend, and the sense-datum *acquires* a more and more definite colour, though it had none at first. It becomes first bluish, then blue-grey, then smoke-colour. What sort of a becoming is this ? Or if you prefer to call it a series, what sort of a series is it, in which the members stand progressively lower and lower in the determinable-determinate scale ? For we must remember that we are not *discovering* the determinate colour which was there all along ; before we began attending, it was not there at all. So too with relations. As I sit writing this, two men enter my room and stand before me. I am aware of two new colour-expanses A and B in my visual field ; but, being preoccupied, I do not notice which of them, if either, is sensibly larger than the other. Then it will be false to say that A is larger than B, or that B is larger than A, or that they are equally large. Both colour-expanses will be of finite size (for I can hardly fail to notice that much) but they will have no size-*relations* at all.

These consequences are very paradoxical. Has Mr. Ayer been led to embrace them by a seductive but false analogy between the effects of attention and the effects of optical instruments, such as

magnifying glasses and microscopes? When I look through a magnifying glass my former sense-datum is replaced by a new one, which differs from it in a striking way. But the difference is not that between determinable and determinate, nor between vague and definite. It is simply that the new one has a greater number of parts delimited by colour contrast, whereas the old one had a smaller number of parts so delimited, or even was perfectly uniform. It is true that we should sometimes say that there had been a passage from vague to definite. But this would be a confusion between the characters of the sense-data themselves and the predictions or other extrapolations which we make on the strength of them. So, too, when a patch of bright sunshine passes across the landscape on a grey and cloudy day. A bit of the visual field suddenly becomes variegated instead of uniform. But this is not a change from vague to definite, though it does enable us to make a definite (instead of a vague) prediction as to what we should see five minutes hence, if we were to walk in a certain direction.

Now perhaps Mr. Ayer will try to defend himself by the same tactics as before. He may say: 'You do not mind admitting that neither of the two men *looked* larger than the other, nor did they look of the same size. Again, you will admit that the flower you saw looked bluish, but did not look sky-blue, rather than peacock-blue. So why do you mind translating these statements into the Sense-datum terminology? That is all I ask you to do.'

But is there not a confusion here between *looking* and *seeming*? 'Seeming' has reference to judgments or assertions, usually of a spontaneous and unconsidered kind, while 'looking' has reference to sensation. Unfortunately the word 'appear' is used for both, which leads us to confuse the two. For we say both, 'Jones appears to have caught his cold at the cinema' and 'The mountain appears grey from here'. In the first case we mean that we, or most people who are familiar with Jones, judge or assert or believe that he caught his cold there. In the second case we do not mean this sort of thing at all. We are certainly not saying that we or other people judge the mountain to be grey. We are referring to what is sensed, not to what is judged.

Bearing this in mind, we can agree that it would be nonsense to say 'that flower *seemed* sky-blue but I did not notice that it did'. Nevertheless, it is perfectly good sense to say 'It did in fact *look* sky-blue, but I only noticed that it was bluish'. Translating this back into the Sense-datum terminology, we get: 'the sense-datum *was* in fact sky-blue, but I only noticed that it was bluish'. To put it another way, there is a difference between being acquainted with something and verifying a proposition about it. The only proposition about it which you bother to verify may be one having an indeterminate predicate, such as 'bluish' or even 'coloured'. Indeed, you need not bother to verify any proposition about it at all. One can see without thinking about what one sees, or anyhow

without thinking about everything that one sees. But it does not follow that one is seeing something with no characteristics at all, or no determinate characteristics. No doubt the thinking or proposition-verifying to which the word 'seems' refers is of an automatic and effortless sort, just as sense-acquaintance is automatic and effortless. And no doubt this leads us to confuse the two, and to use the word 'appear' for both. But really they are quite different.

I conclude, then, that Mr. Ayer's solution of this problem is unsatisfactory, though I confess I cannot propose a better one. Without seeing what he is doing, he has in effect committed the mistake of the idealists who maintained that all cognition is judging, and denied the existence of acquaintance; and I believe he would himself agree that this *is* a mistake.

I now turn to Mr. Ayer's last chapter, ch. 5, 'The Constitution of Material Things'. His aim here is to show how material objects are 'constructed out of' sense-data, bearing in mind the results he has reached earlier about the Sense-datum terminology; in other words, he sets out to state the Phenomenalist analysis of material-object propositions more clearly and fully than has hitherto been done. His version of Phenomenalism is what we may call linguistic as opposed to metaphysical or ontological. He explicitly denies that material objects are *composed* of sense-data, as a patchwork quilt is composed of bits of silk; or rather, he says that this suggestion is nonsensical. Phenomenalism is a theory about the relation between two languages; not between two sorts of entities, but between two notations for describing the same ones. As he says earlier, it is an attempt to exhibit one terminology as a function of another (ch. 3, p. 156). It follows—though he does not emphasise this—that we *lose* nothing by adopting Phenomenalism, as some critics have feared that we should. We shall not have to give up any of our common-sense or scientific beliefs; we shall only be invited to admit that they can all be reformulated in the Sense-datum terminology.

But although Mr. Ayer's version of Phenomenalism is a linguistic one, he does not fall into the mistake of supposing that a material-object statement can be just translated into a set of sense-datum statements, as an English sentence can be translated into a French one. In the first place, a statement in the material-object language is never of the same logical form as a statement in the sense-datum language. If an expression occurring in the one is interchanged with an expression occurring in the other, the result is nonsensical. Thus it is not sense to say that when I sit down on a chair, I am sitting down on a brown sense-datum, or even on a class of actual and possible sense-data some members of which are brown. (Mr. Ayer might have mentioned Berkeley's discussion of the statement that 'we are fed and clothed with ideas'.)

Moreover, there is a certain looseness in the relationship between the two sorts of statements, and the looseness is two-sided. On the

one hand, a material-object statement says more than any finite set of statements about actual and possible sense-data ; it follows that no material-object statement can be incorrigible, as all sense-datum statements are, though it may be so adequately established that no reasonable man would doubt it. On the other hand, a material-object statement also says less than a sense-datum statement. For ' there is no set of statements about the occurrence of particular sense-data of which it can be said that precisely this is entailed by a given statement about a material thing . . . what is required, to verify a statement about a material thing, is never just the occurrence of a sense-datum of an absolutely specific kind, but only the occurrence of one or other of the sense-data that fall within a fairly indefinite range ' (pp. 240 *ad fin*, 241). I am not sure that I follow this. Suppose I want to verify the statement ' the table over there has a square top, two foot by two '. Surely the shapes which the sense-data must have, if this is to be verified, are then perfectly definite, provided that the places from which they are to be seen are definitely specified. Of course, if you do not specify the ' places from which ', it is another story. But surely you ought to ? But further : if he is right here, it seems that what he said earlier must be wrong, when he decreed that sense-data are not to have unnoticed characteristics. For as I pointed out above, this *Diktat* of his would seem to imply that sense-data can have determinable shapes without having determinate ones : whereas here he seems to say that they do have determinate shapes, but within wide limits it does not matter which determinate shapes they are. Perhaps he means that the ones which do have determinate shapes are the only ones we can use for verifying material-object statements. But if it does not matter within quite wide limits *what* the precise shape is, a sense-datum which has *no* precise shape (within the required limits) should be good enough. The same difficulty, if it is one, will arise about determinate sizes, position, colours, tangible qualities, and whatever other characteristics of sense-data may be relevant to the verification of material-object statements.

However this may be, we must not infer that because the two sorts of sentences are not intertranslatable and have this loose relationship to one another, therefore ' to speak about a material thing is to speak about something altogether different from sense-data, or that it is to speak about sense-data but about something else besides ' (p. 241). What does follow is only ' that one's references to material things are vague in their application to phenomena, and that series of sense-data which they may be understood to specify are composed of infinite sets of terms ' (p. 242. I take it that the word ' phenomena ' here and elsewhere in the book is equivalent to ' sense-data ').

Finally, Mr. Ayer tells us that when Phenomenalists talk of ' possible ' or ' obtainable ' sense-data, as well as actual ones, there is nothing to be frightened of. They only mean that when a

material-object sentence is reformulated in the sense-datum terminology, some or most of the sense-datum sentences which result will be hypothetical. And when we say that a material-object may exist, though it is partly or wholly unperceived, we shall be saying (in the sense-datum terminology) that hypothetical sentences of this sort, as of any other, are still true, even when their protasis-clauses are unfulfilled.

After this introduction, Mr. Ayer proceeds to describe in detail what he calls an ' elementary construction of the material world '. His aim is to explain what sort of group of sense-data we are referring to when we use a material-object word, *i.e.* what sense-given relations are constitutive of such a group ; and further, to explain what meaning the word ' possible ' has in this context. He suggests that sense-data which are to be members of the required sort of group must have the following four features : (1) They must occur in reversible series (Kant's ' subjective successions '). (2) They must be related to each other by relations of direct or indirect resemblance. (A indirectly resembles Z, when A directly resembles B, B directly resembles C, . . . Y directly resembles Z.) Mr. Ayer adds, though not very explicitly, that they must also be related by direct or indirect spatial continuity. (3) They must occur in sensible contexts which have direct or indirect resemblance to each other ; if they did not, we should not be able to ' identify ' material objects in the way that we actually do. (4) Such of them as are not actual must be ' permanently possible ' in a special sense of that phrase ; their realisation ' must be viewed as depending, apart from the existence of the " standing conditions " which are required for the occurrence of any sense-data of the relevant sense, only upon the movements of the observer ' (p. 257). Now we do in fact find that there are many sense-data which fulfil these four conditions, and which are accordingly united into groups of the required sort. But that the conditions do happen to be frequently fulfilled is according to Mr. Ayer a contingent fact, and in no way logically necessary. Here I think he is right. Nor would it follow that if sense-data had failed to fulfil some of these conditions, they would have been ' chaotic ' or ' phantasmagorical '. On the contrary, they might still have been perfectly orderly, though with a different sort of order (*e.g.* our visual and tactual data might have an eurythmic rather than a thing-like order, arranging themselves as it were in visible or tangible tunes). If this had been so, we should presumably have been unable to use the material-object language at all. But if Mr. Ayer accepts this consequence, as I think he does, will he not be obliged to abandon or modify what he said in chs. 1 and 2 about alternative languages ? For even if our experience *had* been like this, we should still have been able to use the sense-datum language, just as we can now. Given our experience as it actually is, we may adopt either the sense-datum language or the material-object language, as may best suit our purpose. So far as truth or

falsehood go, it is indifferent which we choose. But this indifference, it now appears, is itself something contingent, which might not have existed; whereas in ch. 1 it seemed to be logically necessary. Perhaps I have misunderstood Mr. Ayer here; but if I have, I believe I am not alone. It is very desirable that he should explain some time the precise sense in which the choice of one sort of linguistic rules rather than another is optional or conventional. If, in a certain conceivable state of affairs, a certain body of terminological rules would have been *without application* (though perfectly self-consistent) in what sense are we 'free' to adopt those rules if we like, and in what sense do they define a 'language'?

But to return to Mr. Ayer's four conditions. I must confess to serious qualms about the fourth. He tells us that a possible or obtainable sense-datum, in the sense here relevant, is one whose actualisation depends only upon the movements of the observer (apart from the 'standing conditions', which we will here neglect). Here, it seems to me, is the crucial difficulty of Phenomenalism. Many Phenomenalists simply ignore it, because they do not deign to go into detail. Mr. Ayer faces it, certainly, but does he solve it? The puzzle of course is, what is meant by 'the movements of the observer'? One would naturally take it to mean movements of his *body*. But then the phrase 'his body', likewise 'its movements', is itself one of those material-object expressions which the Phenomenalist is supposed to be analysing; so that his analysis is either circular, or else involves him in a vicious infinite process. Suppose then that for 'movements of the observer' we substitute 'kinæsthetic sense-data sensed by him', which so far as I can see Mr. Ayer does (p. 258; but his discussion of the point is distressingly brief). We now find ourselves in another difficulty. For it is essential that the kinæsthetic sense-data we are referring to should be normal or veridical ones. If they are illusory or hallucinatory, we are lost. When we say that sense-data of the table in the next room are obtainable or possible, we must mean that they will be actual if we *really* move into the next room. We do not mean that they will be actual if we dream of moving there or have a hallucination of moving there. But when we say 'really' move (as opposed to having a hallucination or illusion of moving) the word 'really' does not, of course, refer to any intrinsic quality which our kinæsthetic sense-data may have. It refers to certain relations between them and other sense-data—my own or other people's—visual ones, tactual ones, perhaps other organic ones. And unfortunately some of these other sense-data, by reference to which the distinction between veridical and hallucinatory kinæsthesis is defined, will themselves be only possible, not actual. We must then ask what is meant by saying that *they* are possible. The answer must be, we mean that they would be actualised if certain *other* bodily movements, or certain other veridical kinæsthetic data, were to occur. And then the same old difficulty turns up again. I may summarise the puzzle by saying

that the hypothetical statement, by means of which ' possible sense-datum ' is supposed to be defined, contains an infinite series of subordinate hypothetical statements inside its protasis-clause. Now perhaps this is not a genuine difficulty at all. I admit that it has a suspiciously complicated and artificial air ; and if it is soluble, I should expect that the solution is very simple. But I greatly wish that Mr. Ayer would give his attention to it.

I have confined myself to three chapters only of Mr. Ayer's book, the first two and the last, and even so there are many interesting points in them which I have failed to mention. I must be very brief about the remaining two, chs. 3 and 4. The most striking point about ch. 3, ' The Egocentric Predicament ', is Mr. Ayer's recantation of his previous views concerning statements about other people's experience. He formerly held that such statements, unlike statements about one's own experiences, are only intelligible if interpreted behaviouristically : a doctrine which was a great stumbling-block to his readers. He now points out that it is not logically impossible that an experience which happens to form part of your mental history should have formed part of my mental history instead. Not that it is logically possible for it to form part of both mental histories at once, at least according to our present conventions for the use of such words as ' mine ' and ' your ' ; but it is logically possible for it to form part of *either*, though it does, in fact, form part of yours and not of mine. Thus the hypothesis that there are quite literally other experiences besides my own is after all a conceivable hypothesis ; and this once granted, one can easily find arguments which strongly favour it. Mr. Ayer thinks that these are of an analogical kind, not so much from similarity of bodily shape, but rather from similarity in respect of purposive behaviour, and from the fact that other bodies emit noises which convey information to me, information which I can then proceed to verify for myself.

About ch. 4, ' Causality and Perception ', I will only say that its arguments, both destructive and constructive, are as interesting as they are controversial ; especially the discussion of the Rationalistic interpretation of Causal Law, and of the nature of so-called ' scientific objects ', which are declared in one place to be *entia rationis* (p. 213 : ' the " entities of reason " which are postulated as a means of describing and predicting the course of sensible phenomena '). I hope that some time Mr. Ayer will have more to tell us about these *entia rationis*.

H. H. PRICE.

Theism and Cosmology, being the First Series of a Course of Gifford Lectures on Metaphysics and Theism given in the University of Glasgow in 1939. By JOHN LAIRD. London : G. Allen and Unwin, 1940. Pp. 325. 10s. 6d.

MOST Gifford Lectures fall into one or other of two classes. Some are systematic treatises in which an eminent philosopher sums up the results of a life-time of reflexion in an elaborate system of general philosophy. Perhaps the greatest instance of this class is Alexander's *Space, Time, and Deity*. Others are semi-popular expositions of some branch of natural science by a technical expert, enlivened by the bright but somewhat naive ideas on philosophical or theological topics which strike distinguished scientists while shaving. It is needless, and would be invidious, to give examples. Many, *e.g.* James's *Varieties of Religious Experience*, fall into neither of these classes ; but very few indeed are discussions by competent authorities of precisely what Lord Gifford wanted to have discussed. Professor Laird's lectures fall into this very small class. He opens them with the statement, " . . . I intend to talk about the subject I was asked to talk about, *viz.* natural theology ", and he faithfully fulfils his promise. The merits of this self-imposed restriction are obvious, but there are serious drawbacks to be set against them. After the attacks of Hume and Kant the standard arguments of natural theology have been permanent invalids, and the upshot of Professor Laird's re-discussion is to show that there is little hope of their recovery. To most of us the prognosis would have seemed so unfavourable that we should have hesitated to ask a distinguished specialist to spend his time in reviewing the symptoms on the off-chance that he might be able to reverse the verdict or suggest a cure. However, the specialist has undertaken the case of his own accord, has lavished all his skill on it, and has honestly earned his fee. As might be expected, his report does not make very exhilarating reading.

The gist of the first chapter, " Concerning Natural Theology," is as follows. Natural theology is concerned with " whether and what we can learn about God *in the natural way* ". Natural knowledge consists of (i) sense-perception, extra-somatic and intra-somatic; introspection ; and the kind of non-inferential cognition of other embodied minds which Professor Laird calls " mind-reading " ; (ii) the ordinary processes of demonstrative and problematic inference ; and (iii) any synoptic cognition which comes under the head of scientific insight or imagination. Professor Laird sees no reason to think that we have any other sources of knowledge than these. In particular he is sceptical of claims by Hegelians to a special kind of logic appropriate to the subject of speculative philosophy ; and he is doubtful whether religious experience, in so far as it is cognitive, involves any kind of cognition not enumerated above. Lastly, he asserts that it is not self-evident that the objects of natural knowledge

must be confined to the parts of nature, their qualities, and their inter-relations.

The second chapter is occupied with the definition and delimitation of philosophical theism. A "theist" is defined as one who holds that there is a God, or that there are gods, in any of the forms in which such beliefs may be held. In order that theism may count as "philosophical" three conditions must be fulfilled. God or the gods must exercise power *on a cosmic scale and to a marked degree.* The divine power must constitute a *unity*, though this does not exclude polytheism. And deity must be regarded as *ultimate*, in the sense of not having its source or its explanation in anything else. In connexion with the second of these conditions Professor Laird discusses pantheism, and draws a distinction between a distributive and totalitarian form of that doctrine. In elucidating the third condition he discusses the marginal cases of a limited God, a God conceived as developing in time, and the Alexandrian notion of deity as an emergent quality. This discussion is followed by a sympathetic account of the tenets of deism, *i.e.* the doctrine that we can legitimately infer the existence of an intelligent author of nature, but have no ground for ascribing to him conative-emotional or moral characteristics. Professor Laird ends the chapter by pointing out that in the present volume he confines himself mainly to "the deistical part of cosmological theism", and proceeds on the temporary assumption that the *prima facie* dualism of mind and matter need not be replaced by any form of Mentalism. This limitation will be removed, and this temporary assumption and its consequences for theism will be examined, in the second course of lectures.

In the third chapter Professor Laird deals with the Cosmological Argument. The general form of this argument is: So-and-so exists and is not self-sufficient; therefore something else which is self-sufficient must exist as its supplement and correlate. It has at least the merit of starting with an existential premiss. In this premiss "so-and-so" might be either "something or other" or "a certain finite particular" or "nature as a whole". Now this leads to a dilemma which is one of Professor Laird's main criticisms on the argument. If "so-and-so" be anything less than nature as a whole, it will no doubt lack self-sufficiency, but it is very doubtful whether its supplementary correlate will need to be divine. If, on the other hand, "so-and-so" is nature as a whole, then it is by no means obvious (i) that the phrase applies to anything, or (ii) that, if it does, nature as a whole lacks self-sufficiency.

Professor Laird is inclined to think that the phrase "nature as a whole" is indefensible unless interpreted so cautiously that what it denotes cannot possibly bear the weight of the Cosmological Argument. The rest of the chapter is devoted to distinguishing various senses in which the world might be said to lack self-sufficiency, in asking what kind of supplement each kind of lack of self-sufficiency

would require, and in considering whether the world does in fact lack self-sufficiency in any of these respects. The results are entirely unfavourable to the Cosmological Argument.

Chapter iv is concerned with the notion of Creation. Professor Laird distinguishes three possible types of cosmogonic theory : (i) That the world is brought into being, but not out of anything ; (ii) that it is made by the arranging of some pre-existing material ; and (iii) that it is " some sort of output of divine substance ". The first of these is the creation theory, and the third is the emanation theory. Though himself sympathetic to the emanation theory, Professor Laird devotes the rest of the chapter to the creation theory. He first considers whether there are any special activities within the world which can throw light on the notion of cosmic creation. After considering artistic production and biological procreation, he concludes that no light can be expected in this direction. He then develops a theory, affiliated to Whitehead, in which the state of the world at the present is the creature of its immediately past state and the creator of the state which will immediately follow it. The theory may be summed up in two quotations. " . . . The theory of creative process must hold that anything that is said to persist persists as a flame persists." And again : " Present actuality . . . does of itself what, according to Descartes, God had continually to do for the world, *i.e.* renew its existence ". He recognises and insists that, since this theory is perfectly general, it must apply to the persistence of God himself if he be temporal ; and that, if he be not temporal, then all talk of his having started the world on its temporal course is unintelligible.

The fifth chapter is concerned with time and eternity and their relations to theism. Professor Laird argues that the appearance of change *anywhere* involves the reality of change *somewhere ;* that the continual transition which each of us experiences throughout his waking-life and his dreams is something absolute ; and that it is nonsensical to suggest that what does not yet exist relatively to one standard of reference may already exist relatively to another. Arguments against the reality of time and change *must* therefore be mistaken. In his discussion of the notion of eternity Professor Laird recognises three senses of the word. One is sempiternity, which essentially involves time and duration. One is the apparent arrest of temporality in an experience which seems to contain no sense of becoming, whether variegated or monotonous. It seems certain that such an experience must be delusive in its temporal aspect, since it must be admitted to begin at a certain time, to last for so long, and then to cease. The third sense of eternity is the timelessness of truths and other abstract entities. This cannot be applied to existents.

In discussing the bearings of change and eternity on Theism Professor Laird starts from two propositions which he considers to be self-evident. The total ground of any change must itself include

a change. And there is no intelligible sense in which a temporal existent and a non-temporal existent could form parts of a single system. He concludes that, since the world certainly endures and changes, God must also endure and change if the world depends on him. All permanence, including that of God, must be permanence in succession. This may consist in the fact that processes of becoming have so far manifested certain constant patterns. To say that so-and-so *will* endure is to conjecture that there will be events which will hook on to that event which is the present state of so-and-so in the same determinate way in which that has hooked on to certain earlier events to constitute the history of a persistent but changing thing.

From this view of becoming and persistence Professor Laird argues (i) that inferential pre-diction has an entirely different status from inferential post-diction; and (ii) that it is impossible for anyone, even for God, to have non-inferential knowledge of future events comparable to memory-knowledge of past events. I think that there is a good deal to be said in criticism of these remarks, but the matter is far too complicated for discussion in a review.

The sixth chapter, on "Ubiquity", begins by pointing out that there are not the same objections to holding that space is illusory as there are to holding the corresponding view about time and change. This is followed by a fairly lengthy account of the phenomenology of the extensive aspect of nature, both from an ontological and an epistemological standpoint. The rest of the chapter contains the application of these notions to the question whether God is in any sense spatial. The upshot of a long and learned discussion may be summed up in Professor Laird's own words. "Let us say, then, that God is probably everywhere if he is anywhere, and that if he be nowhere at all, in all relevant senses, cosmology has nothing to do with theology." By all means let us say this and have done with the matter.

We return to more interesting topics in Chapter vii on "Omnipotence". At an early stage Professor Laird concludes that "it may rightly be doubted whether the conception of omnipotence as an agency *capable de tout* is really of serious import in a philosophic enquiry". He therefore devotes the rest of the chapter to divine "omnificence", *i.e.* the doctrine that all that is in fact done is done by God. The course of the argument is roughly as follows: (i) A distinction is drawn between "first" and "second" causes, and the question is reduced to whether the former are the only true causes. (ii) The notion of causation is then discussed, and three main views about its nature are distinguished, *viz.* the theory of invariant sequence, the theory of activity, and the theory that causal connexion is of the nature of logical entailment. (iii) Each of these interpretations is then applied in turn to the notion of first and second causes. (*a*) On the pure uniformity view no such distinction could be sustained. Moreover, no sequence which was unique could be known

or rationally conjectured to be an instance of invariable sequence. Therefore, "a first cause of the world, in the uniformitarian sense of cause, could never be established". (*b*) On the purely activist theory a distinction could be drawn between first and second causes if and only if it were legitimate to hold that some acts are purely spontaneous and derive nothing from any previous cause. (*c*) On the pure entailment theory the question would be whether there is a distinction among causes like that between self-evident principles and other propositions which can be known only by deduction from them. Professor Laird thinks that there are strong reasons for rejecting this suggestion. (iv) He next considers whether, on any of the three views of causation, there is any reason to believe in the existence of a single omnificent first cause. From what has gone before it follows that only the activity and the entailment view need to be seriously considered here. The most important point that is made in connexion with the activity view is that our volitions are only cause-factors and are not total causes of our voluntary movements, and that there is not the least reason to hold that the other cause-factors which supplement them are anyone's volitions. After a good deal of discussion of the entailment theory, which it is not easy to summarise, Professor Laird concludes that "there is no clear, uninterrupted road from cause . . . to omnificence in any of the three principal senses of cause". (v) Finally, he considers whether a judicious combination of the three views will accomplish what each of them separately has failed to do. He concludes that it will not.

The eighth chapter, on "Teleology", is a preparation for the ninth, which is about the "Argument from Design". The essential points which Professor Laird makes about teleology are the following: (i) There are systems within nature in which we can observe a pattern of change or of growth, which is preparatory for a specific future state, and which tends to achieve some benefit for the system, if we include self-maintenance and development under the head of "benefit". All such systems may be called "teleological". (ii) In certain such systems an essential cause-factor in bringing about the teleological change is an idea of the benefit to be obtained and an attraction exercised by this idea. Here we can speak of "idead teleology". (iii) Though there are limiting cases of idead teleology where the efficient ideas are very dim and vague, there are plenty of other cases where there is no reason to believe that the teleological change is in any way due to an idea of the end to be attained. (iv) Systems having a teleological pattern occur in inorganic matter as well as in organisms and in persons. It is a serious mistake to try to account for the ostensibly unidead teleology which occurs in crystals and in organisms by postulating a process of psychological causation by ideas, which is not known to operate anywhere but in the deliberate actions of persons.

As Professor Laird remarks in a footnote at the end of chapter ix, a better name for the Argument from Design would be the argument

to a designer *from* the facts of teleology. Professor Laird distinguishes between "particulate" teleology, *i.e.* the occurrence of teleological systems, such as watches and organisms, within the world, and "œcumenical" teleology, *i.e.* the alleged fact that the world as a whole is, in some respects at any rate, a teleological system.

There is no doubt that there are teleological systems within the world. But *prima facie* most of them are not planned systems, and there is no good reason to hold that they must be planned because they are teleological. Suppose, however, that we insist on taking that view of them. We must remember that the only planners about whom we have any direct knowledge are minds embodied in organisms, and that they carry out their designs by the use of their organisms. Suppose, then, that we insist that the organisms within the world are really machines designed by God. If the analogy is to be intelligible, we shall have to ascribe an organism to God and to assume that he carries out his designs by means of it. But now we have on our hands at least one organism, *viz.* God's, which cannot be regarded as a product of design.

Whether the world as a whole is a teleological system is doubtful; and, if it be so, there is no good reason to regard it as an instance of a planned teleological system. It would be more plausible to call it divine, because teleological, than to regard it as the deliberate product of a divine agent.

After a considerable amount of detailed discussion Professor Laird concludes as follows. " . . . The Argument from Design seems to me to be quite fantastically weak, and theists, in my opinion, would be wise if they abandoned it. . . . If there had been no confusion between teleology and planned teleology I cannot believe that the Argument . . . would have found many adherents."

The last chapter, entitled " Examination of Cosmological Theism ", is in the main a recapitulation of the results of earlier chapters. It also contains some remarks about recent physical speculations on the origin and destiny of the stellar universe. I may end this review with two quotations which seem adequately to express the conclusion at which Professor Laird has arrived by the end of his first course of lectures: " . . . Theistic cosmologists should concentrate . . ., not on the indefensible prepossession[1] that the deiformity in the cosmic pattern must have been *imposed*, . . . but upon the godlike character of that pattern itself". And again: " The deiformity of the world . . . seems to be the most natural conclusion for a realistic limited cosmology to aim at. . . ." I do not think that he has given any reason to believe that this modest aim can be attained; and, so far as I can see, he makes no claim to have done so. It remains to be seen whether anything more positive can be reached from the wider basis on which the argument in the second course is to be built.

C. D. BROAD.

[1] Can this be a misprint for *proposition*?

VI.—NEW BOOKS.

Metaphysics in Modern Times: A Present-Day Perspective. By D. W. Gotshalk. University of Chicago Press. Cambridge University Press, 1940. Pp. xi + 110. 9s.

This book appears to have been written with two conflicting aims. The author wanted partly to write an introduction to metaphysics for the beginner, and partly to set before the more advanced student some views of his own concerning the development of metaphysics. The combination of these two aims produces a rather disappointing book. It presupposes more acquaintance with philosophical terms and ways of thinking than the beginner is likely to possess, while the suggestions for the advanced reader are too sketchy to be of much use. Probably the author's earlier and larger book, *Structure and Reality*, referred to in footnotes, would amplify these. Mr. Gotshalk would have been better advised to make the present volume an introduction, in simple language, for the beginner, and to refer the reader in an appendix to his own views as set out in his earlier book.

The word " modern " in the title is used in the same way as in " Modern " Greats at Oxford; metaphysics in modern times is to mean metaphysics from Descartes onwards. The first chapter states the purpose and method of metaphysics. The next two chapters review briefly the main types of theory: chapter two outlines the several kinds of view that continually recur, idealism, naturalism and their sub-types; chapter three attempts to deal with these views in a sort of Hegelian way, picking out a chronological development, and suggesting a modern " synthesis " as the latest stage of that development. Finally, the fourth chapter discusses the value of metaphysics.

The purpose of metaphysics, Mr. Gotshalk says, is to seek principles of the widest generality. Quotations from Aristotle and Whitehead are intended to show that this has always been so from first to last, from A to W as it were, neglecting the Xs, Ys and Zs who occasionally crop up with quite different aims. The proper method for metaphysics, as for science, Mr. Gotshalk continues, is to combine logical consistency with conformity to empirical facts. This is all very sensible, if not high-flown, but it is made to appear more highfalutin' than it is by such phrases as " following the sinuosities of the real ".

Prof. Gotshalk classifies metaphysical theories into three main groups, naturalism, idealism and dualism, and illustrates each with examples from historical and contemporary philosophers. He next divides philosophies of this period into " epochs ", relating them to the social, scientific and cultural background in which they appeared. He finds three epochs. The first was impressed with permanence. In philosophy this period includes the writers from Descartes to Kant, and shows an exclusive attention to the notion of substance. Politics exemplifies the love of permanence by fixed classes; art by Bach and Pope, Haydn and Racine,

"celebrating a love of clarity and artificial order, fixity and embroidered simplicity"; and science by a search for fixed principles.

The second epoch was impressed with change. But in Mr. Gotshalk's examples "change" somehow becomes entangled with individualism. Politics and economics show military expansion; the arts produce the "individualistic" works of Beethoven, Wagner, Shelley and Whitman (I seem to remember Wagner's music being accused of having been anti-individualistic); science concentrated on the study of living process; and evolution is the chief concept to impress the philosophers, exemplified by Bergson and Alexander (curious to pick these out as the philosophic giants of the nineteenth century, with which this "epoch" appears roughly to coincide).

The third epoch, thinks Prof. Gotshalk, has begun recently. It exhibits a synthesis of the two earlier ways of thinking, combining the notions of permanence and change, and in particular it concentrates on the notion of relation. The philosophy he advocates speaks of events and continuants rather than evolution and substances: even more basic than events and continuants are relations or relational structure. This philosophy is correlated with other aspects of contemporary life and culture, "a centrally integrated economy", "in government a trend toward a continuous centralized authority which states and placates the will manifested throughout the vast majority", in science an emphasis on social studies, and in art attention to its social function.

Some praise is due to an attempt to correlate philosophical movements with other contemporary human activities, but it is often not clear where the similarity lies or what Mr. Gotshalk is comparing. The synthesis in philosophy is between permanence and change, but in the other activities mentioned the synthesis appears to be between individual and community; science, art and economics have been more influenced by contemporary politics than in the past. This is doubtless true, but what has it to do with syntheses between earlier trends in those activities *themselves?* How is functional or social art a synthesis of conventional form and individual expression? Or how does an abundance of sociologists reconcile (if any reconciliation is needed) Newtonian physics and Darwinian biology?

In any case the obtrusive influence of disturbed politics does not necessarily turn these activities towards itself; it may have the opposite effect of inducing "escape from real life". Mr. Gotshalk gives no names of artists who are supposed to typify the modern tendency to emphasise the social function of art. In philosophy, too, the modern tendency is rather to fight shy of ethical and political theory, and concentrate on detached and harmless things like words or coloured patches.

Perhaps Mr. Gotshalk thinks the synthesis is among the different human activities themselves, their converging together with society as their centre, instead of pursuing their separate ways. But if so, one would imagine that his synthetised philosophy would follow a writer like Comte rather than the event-continuant view of Johnson and Prof. Broad. His choice of outstanding philosophers for his second and third "epochs" is, from the point of view of his historical-development theory, curiously arbitrary. Mr. Gotshalk the Hegelian historian does not blunt the judgment of Mr. Gotshalk the philosophical critic.

Finally, the author gives reasons for attributing value to metaphysics. Firstly, it satisfies curiosity in attempting to simplify the complex; next it clarifies by analysis concepts, both of common sense and of science,

much used but less understood; thirdly, it is a fruitful source of new suggestions for inquirers and reformers in many fields; and last it tends to give a breadth and calm of outlook. This final chapter is perhaps the most helpful. It is brief, like the others, but goes furthest to justify a book highly priced for its size.

D. RAFILOVITCH.

The Writings of Robert Grosseteste, Bishop of Lincoln, 1175-1253. By S. HARRISON THOMSON. Cambridge University Press, 1940. Pp. xvi + 302. 21s.

THE author of this elaborate bibliography, who is Professor of History in the University of Colorado, has performed a very remarkable labour of devotion to one of the greatest of the English schoolmen, having visited no less than one hundred and forty libraries and examined approximately two thousand five hundred manuscripts. Anyone who is familiar with the palæographical difficulties of the mediæval cursives will certainly not grudge him due recognition of his industry and enthusiasm.

Robert Grosseteste was the first important schoolman to realise the urgent need for Latin translations of Aristotle and the Greek Fathers, so it is not surprising that his works enjoyed such wide circulation. Besides this he wrote many philosophical works of his own and commented freely on biblical, patristic and philosophical texts. Finally, as became a bishop of those times, he was a man of action as well as a scholar, so that among the most interesting of his remains are his sermons and letters, including those which relate to his resistance against undue curial exactions from the English sees.

Modern historians of mediæval thought have familiarised us with the story of the absorption of biblical and philosophical learning into the Catholic system, but they have too often slighted the deep evangelical spirit that was to be found in schoolmen such as Grosseteste. Civilisation in the last resort is the reconciliation of man and nature in which process there will always be found two parties—those who would reconcile them by subduing nature to man and those who recognise that man must submit himself to nature. The first is the way of science and the second is the way of religion. Between them lies the path of practical adjustment, —a difficult way not to be reached in this or any other age without much trial and many errors. The appeal of Aristotelianism to Christian thought lay not in its strictly scientific spirit but in the studied moderation of the philosopher's views, which seemed to be reconcilable with the more lucid of the patriotic writings. The reconciliation of the pure Gospel with scientific discovery was a problem that did not become acute until after the Renaissance, and it seems as though with a few lucid intervals Western civilisation has allowed the dichotomy to become more and more marked. That cannot prevent us recognising in Professor Thomson's bibliography a labour truly scientific in spirit, and Englishmen will rejoice to know that it will shortly be followed by an edition of the Opera Inedita of Grosseteste in which he will have the collaboration of such eminent palæographers as Professor Ezio Franceschini, Dr. R. W. Hunt and Miss Ruth J. Denn.

ARTHUR T. SHILLINGLAW.

Received also :—

De W. H. Parker, *Experience and Substance*, University of Michigan Press, 1941, pp. x + 371, $3.00.

Thomas Reid, *Essays on the Intellectual Powers of Man*, edited and abridged by A. D. Woozley, London, Macmillan & Co., Ltd., 1941, pp. xlviii + 456, 21s.

F. J. E. Woodbridge, *An Essay on Nature*, New York, Columbia University Press, London, H. Milford, 1940, pp. x + 351, 20s.

C. Thurston, *The Structure of Art*, University of Chicago Press ; Cambridge University Press, 1940, pp. viii + 190, 15s.

R. Klibansky, *Leibniz's Unknown Correspondence with English Scholars and Men of Letters*, London, The Warburg Institute, 1941, pp. 17.

F. Kenyon, *The Myth of the Mind* (The Thinker's Library, No. 85), London, Watts & Co., 1941, pp. ix + 115, 1s. 3d.

J. F. Brown (with the collaboration of K. A. Menninger), *The Psychodynamics of Abnormal Behaviour*, New York and London, McGraw-Hill Publishing Company, Ltd., 1940, pp. xvi + 484, 24s. 6d.

J. W. Fisher, *Psychology and Mental Disorders for Nurses*, London, E. Arnold & Co., 1941, pp. viii + 120, 4s.

T. A. Ross, *Lectures on War Neuroses*, London, E. Arnold & Co., 1941, pp. vii + 116, 6s.

S. E. Anderson, *Where God and Science Meet*, Boston, Meador Publishing Company, 1938, pp. 235, $2.00.

C. Brinitzer and B. Grossbard, *German versus Hun*, London, G. Allen & Unwin, Ltd., 1941, pp. 270, 10s. 6d.

J. Hettinger, *Exploring the Ultra-Perceptive Faculty*, London, Rider & Co., 1941, pp. xii + 172, 12s. 6d.

'The Soldier', *The Way to Life*, London, A. Dakers, Ltd., 1941, pp. xiii + 172, 5s.

Verrina, *The German Mentality*, London, G. Allen and Unwin, Ltd., 1941, pp. 257, 10s. 6d.

The Journal of Æsthetics and Art Criticism, No. 1, Spring 1941, ed. by D. D. Runes, published quarterly by The Philosophical Library Inc., 15 East 40th St., New York, pp. 134, $4.00 per year ; foreign postage $1.00.

Mediæval and Renaissance Studies, Volume I, No. 1, ed. by R. Hunt and R. Klibansky, published twice a year by The Warburg Institute, Imperial Institute Buildings, London, S.W. 7, pp. 149, 15s., annual subs. 21s.

VII.—PHILOSOPHICAL PERIODICALS.

PHILOSOPHY OF SCIENCE, vii, 4 (October, 1940). **R. D. Gordon.** *Inverse Probability and Modern Statisticians.* ["... any so-called 'estimate' or 'appraisal' which does not take account of *a priori* probabilities which we may assess must be devoid of any human meaning. It remains a theorem in pure mathematics looking for an application...."] **W. M. Malisoff.** *Physics: The Decline of Mechanism.* [Condensation of a popular lecture delivered in New York, January, 1940.] **G. Bergmann.** *The Subject Matter of Psychology.* [Written from the standpoint of Carnap's logical syntax. The emphasis is on the type of 'language' used in each of three contrasted approaches to psychology.] **A. I. Melden.** *Thought and its Objects.* ["... thinking and meaning are not entities in the sense that they are objects of which a generic description or analysis is possible."] **R. H. Dotterer.** *Our Certainty of Other Minds.* ["... we have a logical right to believe anything vouched for by analogy, unless and until a sufficient reason is found for questioning it. I wonder, indeed, whether everyone will not have to admit that his confidence in the existence of other minds is initially greater than his confidence in the trustworthiness of even the most indubitable forms of reasoning."] **L. A. White.** *The Symbol: The Origin and Basis of Human Behaviour.* ["The emergence of the organic faculty of symbolising has resulted in the genesis of a new order of phenomena: a superorganic, or cultural, order. All civilizations are born of, and are perpetuated by, the use of symbols. A culture, or civilization, is but a particular kind of form (symbolic) which the biologic, life-perpetuating activities of a particular animal, man, assume."] **R. Lepey.** *The Verifiability of Different Kinds of Facts and Values.* ["Traditional dualisms in thought and inequalities of economic and social stimulus have retarded verification more in art and morals than in science. In all three interests verification occurs through fundamentally the same kind of inclusive and experimental processes. The formulations within each interest vary from the rather highly verifiable to the probably unverifiable." In terms of adequacy and adjustment to "life as a larger whole, the formulations of art and morals may as a group be more verifiable than those of science".] **B. F. Ritchie** and **A. Kaplan.** *A Framework for an Empirical Ethics.* [By "empirical ethics" is here understood "the study of moral practice and of the moral judgments employed within such practice". The authors try to analyse "the relations between the more frequently used value terms". The primitive terms (undefined) are 'activity' and 'environment'; each activity occurs in *an* environment, but has *its* own environment ("that set of characteristics of the spatio-temporal environment such that a change in one of these characteristics produces a corresponding change in the activity"). Definitions are given of such terms as *maladjustment* (of an activity), *distortion* (of an environment), *impulse*, *habit* ("an act in reaction to a distortion partially occasioned by signs"), *interest* ("a course of action regarded as fulfilling an impulse"),

goods ("the objects of relevant impulses") and *values* ("the objects of any interest"). Some practical applications are made. (an interesting and well written paper.)] **O. Kaplan.** *Prediction in the Social Sciences.* [A somewhat gloomy display of the difficulties to be overcome if prediction in the social sciences is to be possible. These range from difficulty of access to relevant data to the tendency to neglect variables and their inter-relationships.] **S. Ratner.** *Presupposition and Objectivity in History.* ["The historian, if he is to safeguard himself against arrogant absolutism and dogmatic provincialism, must formulate his postulates rigorously, construct and consider alternative postulate-sets critically yet sympathetically, and forswear identification of the familiar with the true."] Reviews.

viii, 1 (Jan. 1941). **A. F. Bentley.** *The Human Skin: Philosophy's Last Line of Defence.* ["Human skin is the one authentic criterion of the universe which philosophers recognize when they appraise knowledge under their professional rubric, epistemology." Philosophers are guilty of "etherialization of an anatomical skin". Certain kinds of would-be behaviourists receive rough treatment in this vehement assault.] **D. L. Miller.** *The A Priori in Contemporary Thought.* ["... there are two kinds of a priori knowledge, neither of which is absolute in the Cartesian or Kantian sense of the term, but both are relative. One kind pertains to the intentional reference of words or sentences ... the result of our formal language systems over which we have control. ... The other kind of a priori knowledge pertains to extensional reference. It is had or experienced in one's attitudes towards or beliefs about the actual world."] **E. Zilsel.** *Phenomenology and Natural Science.* [A short but crushing review of a paper on colours written by Hedwig Conrad-Martius (1929)—"a favourite pupil of Husserl's".] **E. Toms.** *The Law of Excluded Middle.* [Attempts to show that in the cases in which the law has been supposed to break down it does in fact apply. Much of the discussion turns around statements concerning the future.] **W. M. Malisoff.** *Chemistry: Emergence without Mystification.* [Condensation of a popular lecture.] **G. Bateson.** *Experiments in Thinking about Observed Ethnological Material.* [An extremely interesting "autobiographical account of how I have acquired my kit of conceptual tools and intellectual habits".] **A. O. Weber** and **D. Rapaport.** *Teleology and the Emotions.* [Criticism of a paper by M. C. Nahm in the same journal (vi. 1939).] **Y. H. Krikorian.** *Meaning as Behavior.* ["... the analysis of meaning as psychological fact must start and end as behavior, whether observed or expected, since behavior is the only aspect of living or mental beings that can be observed or confirmed. ..." Meaning is an "anticipatory response", and so is "suppositional" in the sense of involving "readiness to act in relation to some situation". Meaning is "operational" and "communicative". But "meaning in its fullest sense is the integrative behavior of all these aspects."] **H. S. Fries.** *Virtue is Knowledge.* ["The claim made here is that science can and will make its own invaluable contribution to life if we will consent to grant life its rightful claim of precedence over science."] Discussion (correspondence). **J. M. Reiner.** *Diffusion and Biological Membrane Permeability, II.* **M. Avrami.** *Geometry and Dynamics of Populations.* [Two technical papers in applied mathematics.] Reviews.

VIII.—NOTES.

GEORGE DAWES HICKS.

Professor G. Dawes Hicks, Ph.D., Litt.D., F.B.A., Professor of Philosophy in the University of London from 1904 to 1928, died at his home in Cambridge on 16th February at the age of 78. Born on 14th September, 1862, at Shrewsbury, the eldest son of Christopher Hicks, solicitor, he was educated at the Royal Grammar School there, and won a scholarship to the University of Manchester. Here he came under Robert Adamson whose influence upon him was profound and lasting. Besides qualifying for a first class honours degree in philosophy, he acquired a sound general knowledge of natural science, before passing on to Manchester College, Oxford, where he came into contact with Nettleship and Cook-Wilson. Elected Hibbert scholar for 1891-96, he engaged in research at Leipzig under Wundt, Heinze and Volkheit, assisted Meumann in experimental investigations into the apprehension of time, improved his knowledge of physiology under the guidance of Ludwig and Hering, and read extensively in the vast literature of Kantian philosophy. Thus he laid the foundation of that thorough and specialised knowledge of Kant which entitled him later to rank among authorities on the subject. In 1896 he published a critical examination of certain 'strategic' issues in the first *Critique*, *viz.*, his *Die Begriffe Phänomenon und Noumenon in ihrem Verhältniss zu einander bei Kant*, and graduated Ph.D. at Leipzig. In 1904, created Litt.D. at Manchester, he was appointed to the Chair of Moral Philosophy at University College, London, Carveth Read then being the Grote Professor of Mind and Logic. Hicks became Vice-President, then President of the Aristotelian Society; he was for long sub-editor of the *Hibbert Journal*, and for thirty years a trustee of Dr. Williams's Library. For many years he gave lectures in Cambridge, under the auspices of the Faculty of Moral Science, on Psychology and on the Philosophy of Kant. He examined in the Moral Sciences Tripos at Cambridge, and for the Honours Schools at London, Aberdeen, Glasgow and Bristol. His major publications are *Ways Towards the Spiritual Life* (1928), *Berkeley* (1934), *The Philosophical Bases of Theism* (Hibbert Lectures for 1937), and *Critical Realism* (1938). His recreations were the reading of good literature (Wordsworth, Goethe and Schiller were favourites, re-read and often quoted), and, in earlier life, mountain-climbing. During his *Wanderjahre* he climbed the Brocken, most of the Harz mountains and some of the Sächsische Schweiz, and in later vacations came to know the English Lake District, the Grampians and Ben Nevis. He was twice married, in 1902 to Lucy Katherine, daughter of William Henry Garrett of Highbury, and in 1923 to Frances, widow of E. C. Aguggia, D.Litt.

As a teacher, Dawes Hicks was a man of single-mind, wholly engrossed in philosophy and he firmly believed that it, as no other subject, could impart to his students an influence and a training such as would render them habitually reflective about their existence and destiny. Although he ever saw clearly that the spiritual value of philosophical studies far

outweighed their academic importance, he denied, however, that philosophy could legitimately serve as a substitute for religion or for religious faith. And this high evaluation of philosophy accounted for much that was characteristic of his conception of its pursuit in the university and of his method of instruction. An undergraduate course, he felt, should awaken the student's mind to the profundity of the greatest work already accomplished, for the sake both of the merits intrinsic to those accomplishments, and of providing illustrations of the methods by which important problems have been and could be treated. Without familiarity with philosophy as it is manifest throughout its own history, the student was left unarmed, a prey to fashionable theories of the moment, unable from want of historical perspective and imaginative insight to distinguish what was weighty from what was meretricious in them. The plan of instruction Hicks adopted in consequence involved him in the delivery of some fifteen lectures weekly. Here his strength and his weakness as a teacher was apparent. For, not only was the field assigned a vast one, but the rate at which he traversed it was so slow as to multiply inordinately the number of lectures required to cover it. For Hicks invariably dictated his matter. This doubtless ensured that students recorded it accurately, but it no less ensured that a wholly disproportionate amount of their time was given to attending college lectures, and an undue restriction of hours devoted to reading, personal reflection and composition was an inevitable consequence. The slowness of advance necessitated by dictating also involved him in providing further, supplementary courses in some subjects, in which he would amplify details that could be only briefly noticed in the corresponding general courses. In this way he treated separately advanced topics in Plato's metaphysics, in Kant's Critical Philosophy, and provided a two-years' course on epistemology. Each such course singly was doubtless most useful, but all collectively became a crushing load. He further held a late afternoon class for M.A. and advanced students, usually selecting for his subject some work of importance recently published; *e.g.*, Alexander's *Space, Time and Deity*, McTaggart's *Nature of Existence*, Vol. I. By this means he retained philosophical contact with many who had graduated and desired to continue their studies through life. Of all his courses, the best was unquestionably that on the *Critique of Pure Reason;* he was superior to anyone else I have heard on Kant. Of the rest, I judge his lectures on epistemology and the history of philosophy to be the most helpful, those on ethics and the philosophy of religion seemed much less so. Hicks did not distinguish himself in discussion, and to new students he often gave the impression of disposing too summarily of proposals which no doubt seemed to them invaluable. But it was really because he had so often been over the ground before them, and knew that what appeared to them impressive or plausible was in fact unsound, and why it was so. Perhaps, too, some idiosyncrasies of manner or phrase tended to conceal for a while his real measure and merit, from professional colleagues as well as from new students. But those who worked long under his direction knew him for an abler and acuter mind than he at first appeared, and very numerous are the students who held him high in their affections.

Hicks' more serious study of Kant at Leipzig led him to decide that much, even of the central doctrine of the *Critique of Pure Reason* was untenable. Adamson had indicated lines along which a theory of knowledge, Kantian in inspiration, could be developed, and Hicks agreed with

him that "if we are to connect our knowledge into coherency and system, and to understand the significance of the universe in which we find ourselves, we must resume the problem as it came from the hands of Kant". Consequently, the greater part of Hicks' constructive effort was devoted to treating this problem along these lines, and the revisions he subsequently introduced arose from his criticisms and rejection of three of Kant's characteristic positions, *viz.*, the separation of 'Sense' and 'Understanding' into dissimilar faculties; the vicious alternation between 'subjectivist' and 'phenomenalist' tendencies throughout the 'Æsthetic' and 'Analytic'; and the separation of *Dinge an sich* from phenomena, and therewith, the bifurcation of reality into an order of empirical existences and an order of transcendent reals. The following is a very brief indication of the nature of Hicks's corrections on these matters.

Kant's view of a purely sensuous 'manifold' and his theory of its 'reception' concealed, Hicks held, a most dangerous error. It was a groundless supposition that by one kind of activity we apprehended sensory characters, and by another activity the formal or categorial factors of things. Two such disparate operations would make it impossible for us to become aware of a *single object* characterised in sensory and formal ways. The unity omitted at the beginning could not be supplied or accounted for at the end. As against several separate and dissimilar operations, Hicks regarded cognition, at all levels, from lesser to greater complexity, as retaining the same radical character of being exploratory —of being comparative and discriminative. This character is evinced no less in the most primitive sense-awareness than in the most developed conceptual thinking. In agreement with Ward, he maintained that a sense-awareness that is only receptive of sense quality and is not also and therewith discriminative and comparative of the qualities sensed, was the description of no real cognitive activity whatever.

Kant's fluctuations between 'subjectivist' and 'phenomenalist' interpretations were taken as one example of an error which is also embedded in the use made of ideas by British philosophers of the eighteenth century. In this connexion Hicks was much impressed by G. E. Moore's paper, "The Refutation of Idealism", and he sought to eliminate the fatal ambiguity which occasions now subjectivism now phenomenalism in Kant by a theory of 'act' and 'content apprehended'. Later he gave greater definiteness to this theory by using it as a basis from which to contrast and criticise Broad's sensum theory. According to Broad, the objective constituent of a perceptual situation (*i.e.*, that which is directly perceived)—the sensum—is a particular existent, other than the physical thing, but so related to it as to be an appearance of it. The existent sensum, in which sensory qualities inhere, is, more determinately, a transitory, short-lived 'occurrent' in a special kind of 'continuant' which, though a kind of substance, is not the physical thing nor a physical substance. Hicks denied any grounds for assuming "existents of this curious nature" and the inherence of secondary qualities in such unverifiable existent or occurrent particulars as sensa. If it cannot be demonstrated that material things themselves literally possess such secondary qualities, neither can it be demonstrated that they do not, and there is no reason to suppose it improbable that material things do possess them. What, according to Hicks, we directly apprehend in sense-perception is not an intermediary existent (sensum), other than, and related to a physical thing, which physical thing is not directly perceived at all, but

simply the physical thing itself. The physical thing characterised by some (but never all) its qualities—this is the particular existent, and the sole existent, we directly apprehend. A perceived physical object, he held, stands to the percipient in two ultimately different relationships—that by which the thing either causes or occasions a cognitive act on the percipient's part, and that by which the thing constitutes 'the object' *of* which the percipient is aware by means of such cognitive act. Each cognitive act differs from another according as the objects upon which acts are directed are different. The specifically different character of each act derives from, is determined by, the character of the object that is apprehended by it. This specific character of a single act of apprehension (or "content of that act") is, however, no separate entity, and is never the immediate object of apprehension. And as against Broad, Hicks held that in normal sense apprehension what we directly apprehend (the "content apprehended") is not "patches of colour" etc. (sensa) but physical objects themselves with certain of their qualities and relations. Thus the "content apprehended", unlike the thing apprehended, is never particular or existent, but always adjectival,—namely, to the thing. Only for this reason can we apprehend the qualities as being *the thing's* qualities. He ceaselessly emphasised that, unlike the sensum, the content apprehended is not an existent but a quality or complex of qualities. Neither is the content apprehended "an object", for being a quality or qualities, it is but a selection from, a fraction of, the thing's total characters. The sum of such selected or discriminated qualities is different *as a sum* from that sum of qualities which is all the thing's qualities. In this way advancing knowledge always proceeds by way of increasing discrimination and comparison, and is analagous with the way in which the detail of a complicated pattern may become gradually more explicit —except that with advancing knowledge "the pattern" never completely emerges. So for Hicks, 'sensible appearances' are not existentially separate from the things *of* which they are the appearances. Were they independent, as sensa are, he argued, there could be no justification for calling them the thing's appearances. Contents apprehended are 'abstracta', not 'existents' in spatial or temporal continua, therefore they are not subject to modification or alteration in time, as are the things *of* which they are the apparent natures. For Hicks, the sensum is a 'tertium quid' whose existence there is no ground for supposing, whose presence would be obstructive of our knowing things, rather than instrumental to it,—the sensum is, in a word, as otiose and supposititious as Berkeley held matter to be.

Kant's 'thing in itself', understood either as a transcendent real or as a *Grenzbegriff*, could be only a prolific source of error. Hicks thought his theory removed such ground as Kant might have supposed justified him in separating phenomena from things in themselves. For, negatively, his theory corrected the ambiguity about 'sensation', distinguishing without separating awareness and what we are aware of, and positively, it maintained that what we directly apprehend is the real thing itself, and not a representation, or appearance which, as an intermediate, does duty for it. In this way, Hicks claimed that all need of a phenomenal intermediary vanishes, or, we may say, the empirical object and the thing *per se* are indistinguishable.

S. V. KEELING.

WHY ACHILLES DOES NOT FAIL TO CATCH THE TORTOISE.

THE argument of Dr. J. O. Wisdom's interesting article in the January number of MIND is complicated by certain tacitly assumed premises. These were stated explicitly by Berkeley and Hume, and his argument shares the defects of theirs. Berkeley and Hume contended (rightly) that there are *minima sensibilia*, which are atomic and not infinitesimal. But they also contended that perceptible and measurable magnitudes are composed of these *minima*, or that any finite magnitude can be analysed into a finite sum of *minima*, thereby giving Zeno a start in the race.

A simple experiment will show the character of the *minimum visibile*. Make a series of black squares on a white ground, and make them of 1 mm. side, 2 mm. side, 4 mm. side, and so on, so that each square is four times the area of the preceding one. Put these upon the wall and walk away from it. Select a distance such that of three successive squares A is quite invisible, C is clearly visible, and B is just visible and no more. Then A is simply nothing, C is a finite magnitude, B is the *minimum visibile*. I defy anybody to say honestly that B appears as one quarter of C, that is, on grounds of observation apart from *a priori* reasoning. B is just not nothing and really has no magnitude or definite shape or colour. C is quite definite and has colour, shape and size. As percepts A, B and C are incommensurable.

The argument applies equally to any process of measurement. An instrument of measurement in use can always be shown to have a "step", namely that finite physical change which produces the least discernible difference in the reading of the instrument. The "step" fixes the limit of sensitivity. Measurements are not made, however, by observing "steps" and summing them up. In fact, unless one uses an instrument up to the limit of sensitivity one need not notice the "step"; the instrument behaves as if it were infinitely sensitive.

There appear to be ten conceivable alternatives as to the composition of perceptible or measurable magnitudes.

They might be composed of:—

(1) a finite number of finite parts;
(2) an indefinite number of finite parts;
(3) an infinite number of finite parts;
(4) a finite number of indefinite parts;
(5) a finite number of infinitesimal parts;
(6) an indefinite number of indefinite parts;
(7) an infinite number of infinitesimal parts;
(8) an indefinite number of infinitesimal parts;
(9) an infinite number of indefinite parts;
or (10) not composed of parts at all.

All but (1), (7), and (10) can be dismissed at sight, though (6) has possibilities. (1) fails because *minima* are indeterminate and given any determinate magnitude, a smaller one can be supposed. (7) can be left to the mathematicians who deal with mathematical magnitudes, but has little bearing, if any, on perceptible or measurable magnitudes, as Dr. J. O. Wisdom argues. (10) I believe is the correct answer. It is, I suppose, Plato's answer, and is certainly the answer in terms of *Gestalt*. Zeno is beaten before the start by denying his main presupposition, that any length is composed of all possible smaller lengths. Every magnitude is

one, strictly indivisible, and composed of nothing but itself. But any magnitude may be compared directly or indirectly with any other of its kind and the result of comparison expressed approximately (if measured) or exactly (by definition) in terms of a numerical ratio. To say that a foot is composed of, or contains, or can be divided into, twelve inches is a handy but inaccurate mode of speech. It is more correct to say that the length of a foot is to the length of an inch as 12 is to 1.

A. D. RITCHIE.

TO THE EDITOR OF "MIND".

SIR,

"Ditcher" for "Dichter" is a misprint too amusing to pass, and Mr. Broad has duly noted it in the April MIND (p. 198). While I don't suppose that anyone would infer that Alexander was responsible for the mistake, I should like to make it quite clear that the fault was with the printer and the negligent editor. The "copy" (*i.e.* Alexander's printed paper which I reprinted) was innocent of all error. Alexander's German, I may say, was, like his Greek and his Latin, very adequate indeed. My German is not; but even I had enough German to deal with the point.

Correspondents and reviewers between them have called my attention to certain other corrigenda. Three of these, *viz.* "*Philosophers*" for "*Astronomers*" on p. 84, "poetry" for "poverty" (also rather amusing) on p. 200 *n.*, and "choose" for "chose" on p. 385 *n.*, are obviously my fault, being in my part of the letterpress. On p. 125 my sin is graver. Alexander did print "Pancrace" for "Pangloss" and I, in my ignorance, did not correct the blemish.

I am, Sir,
Yours faithfully,
JOHN LAIRD.

TO THE EDITOR OF "MIND".

4th February, 1941.

SIR,

In my paper "What is Dialectic" (MIND, N.S., vol. xlix, No. 196, pp. 403 ff.) I referred, on p. 426, to "Marx . . . listening to the lectures of Hegel". This remark which, by the way, has no bearing on the arguments of the paper, clearly implies that Marx was personally attending lectures of Hegel. I wish now to withdraw this suggestion which I cannot verify and which I took uncritically from a source whose reliability I cannot check, since the suggestion appears unlikely in view of the fact that Marx was only 13 when Hegel died. If, however, Marx should have attended any of Hegel's lectures at such an early age, I should not now wish to suggest that it was on this occasion that the idea occurred to him of turning Hegel's dialectic against its originator. I therefore wish to alter the text on p. 426 as follows: instead of "listening to the lectures of Hegel, then a famous professor in Berlin", read now "coming under the spell of Hegel, then the most famous of German philosophers".

Apart from this correction I should like to add, as an acknowledgement, to the footnote on p. 408: "The following more technical considerations,

pp. 406-408, were known, in essence, to Duns Scotus († 1308), as shown by J. Lukasiewicz, the famous Polish logician and historian of logic; *cf. Erkenntnis* V, 124".

Yours, etc.,
K. R. POPPER.

Christchurch, N.Z.

MIND ASSOCIATION: ANNUAL MEETING.

The Annual Meeting of the Mind Association will be held this year in Trinity College, Cambridge, at 4 p.m. on Friday, 4th July.

MIND ASSOCIATION.

Those who wish to join the Association should communicate with the Hon. Secretary, Mrs. Kneale, Lady Margaret Hall, Oxford; or with the Hon. Treasurer, Mr. J. I. McKie, Brasenose College, Oxford, to whom the yearly subscription of sixteen shillings should be paid. Cheques should be made payable to the Mind Association, Westminster Bank, Oxford. Members may pay a Life Composition of £16 instead of the annual subscription.

In return for their subscriptions members receive MIND gratis and post free, and (if of 3 years' standing) are entitled to buy back numbers both of the Old and the New Series at half-price.